page 1

IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

BLUE CROSS AND BLUE SHIELD OF NEW JERSEY, INC., et al., Plaintiffs, vs. PHILIP MORRIS, INCORPORATED, et al., Defendants. No. 98 Civ. 3287 (JBW)

CONFIDENTIAL VIDEOTAPED
DEPOSITION OF WILLIAM E. WECKER, Ph.D.
San Francisco, California
Tuesday, September 5, 2000
Volume 1

Reported by:
RACHEL FERRIERCSR No. 6948
Job No. 112256

page 1

page 2
IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK
BLUE CROSS AND BLUE SHIELD OF NEW JERSEY, INC., et al., Plaintiffs, vs. PHILIP MORRIS, INCORPORATED, et al., Defendants. No. 98 Civ. 3287 (JBW)

C O N F I D E N T I A L

Videotaped Deposition of WILLIAM E. WECKER, PH.d., Volume 1, taken on behalf of Plaintiffs at 400 Sansome Street, San Francisco, California, beginning at 9:58 a.m. and ending at 5:50 p.m., on Tuesday, September 5, 2000, before RACHEL FERRIER, Certified Shorthand Reporter No. 6948.

page 2

page 3

APPEARANCES:

For Plaintiffs:
DEWEY BALLANTINE LLP BY: JOSEPH ANGLAND
Attorney at Law 1301 Avenue of the Americas
New York, New York 10019-6092 (212) 259-8000
For Defendant Brown & Williamson Tobacco Corporation:
SEDGWICK, DETERT, MORAN & ARNOLD

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

 9   BY: KEVIN J. DUNNE   Attorney at Law
10   One Embarcadero Center, 16th Floor   San Francisco, California
94111-3628
11   (415) 781-7900
12   For Defendant Philip Morris, Incorporated:
13   ARNOLD & PORTER   BY: MURRAY R. GARNICK
14   ROBERT A. McCARTER   Attorneys at Law
15   555 12th Street, N.W.   Washington, D.C. 20004
16   (202) 942-5000
17   Videographer:
18   PAUL ROWLAND   ESQUIRE DEPOSITION SERVICES
19   505 Sansome Street, Suite 502   San Francisco, California
94111
20   (415) 288-4280
21
22
23
24
page 3
page 4
 1   INDEXWITNESS
EXAMINATION
 2   WILLIAM E. WECKER, Ph.D.Volume 1
 3   BY MR. ANGLAND   6
 4   AFTERNOON SESSION   BY MR. ANGLAND (Resumed)   113
 5   EXHIBITS
 6   PLAINTIFFS'   PAGE1   Report of
William E. Wecker, Ph.D., dated
      7
 7   3/6/00
 8
 9   2   5/18/00 letter from Robert A. McCarter to   7
10   Joseph Angland w/additional analyses by
11   Dr. William E. Wecker attached
12
13   3   Wecker SAF Calculation; Harrison SAF   199
14   Calculation
15   4   Document w/handwritten notations with   260
16   headings, "Harris Initiation Rate" and
17   "Harris Quit Race"
18
19
20
21
22
23
24
page 4
page 5
 1   San Francisco, California; Tuesday, September 5, 2000
 2   9:58 a.m. - 5:50 p.m.
 3
 4   THE VIDEOGRAPHER: Good morning.
 5   Here begins Videotape No. 1, Volume 1, in the
 6   deposition of William Wecker in the matter of Blue
 7   Cross/Blue Shield versus Philip Morris in the
 8   U.S. District Court, Eastern District of New York, the
 9   case number of which is 98 Civ. 3287 (JBW).
10   Today's date is September 5th, and the time is
11   9:58 a.m. This deposition is being taken at 400 Sansome
12   Street at the offices of Orrick, Herrington & Sutcliffe,
13   and was made at the request of Joseph Angland of the law
14   office of Dewey Ballantine.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

The videographer is Paul Rowland, Esquire Deposition Services, 505 Sansome Street, Suite 502, San Francisco 94111.

Would counsel please state their appearances and whom they represent.

MR. ANGLAND: Joseph Angland of Dewey Ballantine representing the plaintiff, Blue Cross/Blue Shield.

MR. GARNICK: Murray Garnick of Arnold & Porter for Defendant Philip Morris.

MR. McCARTER: Bob McCarter, Arnold & Porter, for

page 5

page 6

Philip Morris.

MR. DUNNE: Kevin Dunne, Sedgwick, Detert, Moran & Arnold, for Brown & Williamson.

WILLIAM E. WECKER, Ph.D.,

having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. ANGLAND:

Q Could you state your full name for the record, please.

A William E. Wecker, W-e-c-k-e-r.

Q Dr. Wecker, we introduced ourselves a few minutes ago, but at the risk of redundancy, my name is Joe Angland, and I represent the Blue Cross/Blue Shield plaintiffs in this litigation.

I know you have been deposed a number of times before; is that correct?

A That's correct.

Q So you understand how the process works?

A I think so.

Q Okay. And in particular, you understand that you are testifying here under, in effect, the same oath that you will be testifying under before the jury in the

page 6

page 7

courtroom?

A Yes.

(Plaintiffs' Exhibits 1 and 2 were marked for identification by the court reporter.)

BY MR. ANGLAND:

Q Okay. Let me just get some housekeeping out of the way.

I'll hand you what have been premarked as Wecker Exhibit 1 and Wecker Exhibit 2 and ask you if you can identify them.

A Exhibit 1 is my report in this case dated March 6, 2000.

And Exhibit 2 is my report in this case dated May 18, 2000.

Q Are these the only two written reports that you have submitted in this case today?

A Yes.

Q Okay. Now, I notice you have brought with you what appear to be about five black binders. Could you tell me what is in those binders.

MR. GARNICK: Well, before -- I want to go back to the last question, just so the record is clear. We did send you a letter outlining new analysis that Dr. Wecker did do in response to Dr. Harrison's supplemental

page 7

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

page 8
report.
MR. ANGLAND: Agreed. And my reference was actually intended to be a typed report, as opposed to, say, a computer file. And indeed I'll be asking Dr. Wecker about that report. I didn't mean to imply that we did not receive it.
MR. GARNICK: Just wanted to be clear.
BY MR. ANGLAND:
Q Can you describe what are in these binders.
A Yes. Briefly, the small binder is my two reports. The three that I have my hand on are work product in tabs that were too many to fit in one book, but you can think of it all as tabs of computer output and computer code that is my work product. And then this single binder is plaintiff reports.
And that's what the binders are. But there's a few other things, we'll come to them in time, in file leaves and so on that I didn't mention. And I have some notes that I had taken previously over here that you overlooked, that are sitting over here.
Q I'm sorry. I couldn't hear the last few words. Some notes what?
A Some notes that I've taken that weren't in your question, but I just added them in.
page 8
page 9
Q Okay. Focusing on the binders that have the work product, I think you referred to there being three such binders?
A Right.
Q Do they contain, in essence, printouts of various tabs that -- from electronic media you have previously sent us?
A Yes.
Q Do they contain anything in addition to that?
A I have some handwritten notations in there basically indexing to go from tab to tab. I don't think there's anything else, but if we find anything else, I will point it out to you.
Q Do you intend to rely upon those materials as we go through the deposition as I ask you questions about your report?
A If it's the question of the kind that would send me there, the question would be, where did you calculate that number, something like that.
Q Okay. I'm not sure how long it will take to copy this particular code. I'm not going to slow anything down to do it, but we will see if we can find, through judicious use of the lunch hour or overnight if need be, some opportunity to get copies made.
page 9
page 10
You mentioned you brought some materials other than these five binders with you. Are they materials you plan to refer to in the course of the deposition?
A I don't know. Probably they won't come up. I just was fulsome in what I brought.
Q Okay. Now, in the two reports that you have identified as your reports in this case, you cite a number of documents, both hard copy and electronic, that you rely upon in reaching your conclusions; is that right?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

A Yes.
Q Are there any items not cited in your two reports that you intend to rely upon in reaching or supporting your conclusions in this case?
MR. GARNICK: Are you including the electronic data that we recently sent you?
MR. ANGLAND: Yes.
THE WITNESS: I can't think of any example of that, but it could happen, because my analysis continues since I received some materials that I'm still studying as recently as last week. But -- and so I'm updating some of these tabs as appropriate.
Sometimes that's a very minor matter, simply an update. But I can't be sure where my analysis might
page 10
page 11
lead, and so I wouldn't want to rule out adding something.
BY MR. ANGLAND:
Q But as you sit here now, where obviously you haven't done that future work, by definition, are all the materials upon which you rely cited -- either cited in your expert reports or included on the electronic media you have provided to us?
A I think so. Perhaps we should include general practice and experience, because sometimes I rely on what I know as an expert in the area.
Q You didn't cite anything which explained how to do statistical computations, but that's just part of the knowledge that you bring to bear, is that what you mean by --
A Yes.
Q Okay.
A But let me add a tiny bit.
Q Sure.
A In the exchange of materials back and forth, as I've sent expert work product to you, and your experts have sent theirs to us and eventually I received it, from time to time I've noticed gaps that appear to be oversights, and you have noticed the same.
page 11
page 12
And there have been some polite letters exchanged, and we have done our best to fill things out if we have made an omission. And so if you have anything that strikes you as being absent, if you just bring it up through counsel, I would be glad to look into it and supply it as soon as I could.
Q Okay. I may have one or two such things as we proceed.
A All in all, I thought that process worked much more sensibly in this litigation than I've seen in the past. It's a fairly straightforward way to exchange information.
Q Well, I think we are reasonably sensible counsel on both sides this time.
MR. DUNNE: So stipulated.
BY MR. ANGLAND:
Q We found one note of agreement in this case, so let's frame it.
There was some discussion between Mr. Garnick and myself a few minutes ago about a CD-ROM that your office recently sent to us. Do you know the CD-ROM I'm

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

22 referring to at this point? It would have been within
23 the last week.
24 A Generally speaking, but I didn't actually cut
page 12
page 13
1 the CD myself.
2 Q In that case, there was electronic media, but
3 no associated written report. Are you in the process of
4 preparing a report indicating what, if any, conclusions
5 you draw from whatever is on the CD-ROM?
6 A No. I haven't been asked to do that. I would
7 be glad to do it if asked and if it seems helpful.
8 Q Okay. Well, that's really a conversation --
9 MR. GARNICK: Right. Let me interject and say we
10 are just trying to get you this data as soon as
11 possible, and we have not made a decision about whether
12 that would be needed one way or the other. If you feel
13 the need for such a report, we can talk about it.
14 We are not -- it was just a matter of time.
15 MR. ANGLAND: Sure. First of all, I appreciate your
16 expediting it to us, and we will talk about that. In
17 general if it's -- I would suspect that we would need,
18 even if a brief one, some indication, some form of
19 report, but we can talk about that.
20 Q What was your -- let me back up.
21 When were you first retained in this case?
22 A I jotted that down. July of 1999.
23 Q Prior to that point, you had worked for either
24 tobacco companies or the law firms that represent them
page 13
page 14
1 in several other lawsuits relating to the costs
2 associated with smoking; is that right?
3 A Yes.
4 Q What assignment were you given in this case?
5 What were you asked to do?
6 A Asked to review materials from plaintiff
7 experts and comment on them, write a report.
8 Q Okay. Were you -- was your assignment given to
9 you in any greater detail than that, indicating things
10 that you should or should not -- you know, general topic
11 areas that you should or should not address in
12 particular?
13 A Yes. I think that's going to be evident by
14 what I didn't do here, but I believe there's some
15 discussion of administrative expenses that somebody is
16 doing. I'm not reviewing that.
17 Perhaps if we get into the reports of other
18 people and we see something I'm not commenting on, I
19 could -- I haven't paid a lot of attention to what I'm
20 not doing, so I'm not sure how to pick it out.
21 Q In general, is it fair to say that your
22 assignment included reviewing and identifying any
23 problems you saw with the reports of Drs. Harrison,
24 Harris, Max and Fisher?
page 14
page 15
1 A Yes.
2 Q Okay. How did you go about doing that?
3 A I would read the reports when they came in and
4 the accompanying materials that explain them. And then
5 generally I would start by replicating, just to be sure
6 I understood what I thought I understood, could I make

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

my computer work and get the kind of numbers that they were getting, whether I thought there were errors or not, just to see the mechanics. That's my usual first step.

And then I would study. There's no real algorithm for how you study the work of someone else. You read it carefully, you think about it, and perhaps that's the best I can do for the process after that.

Q Did you read depositions of any of plaintiff's experts in this case?

A Yes. Not always every page. And my recall will be imperfect on that, but I have read the depositions of the people you mentioned.

Q Have you reviewed reports of any of the other defendant speakers in this case?

A I don't recall that I did.

Q Have you read any of their depositions?

A Let me think. Just a second, please.

page 15

page 16

I think I have not. I have not.

Q Okay. What notes were you referring to there, or what was that you were referring to?

A I mentioned this earlier. These are -- I think the best thing is miscellaneous notes. They are just things I grabbed and brought to the deposition because I thought -- whether I had an obligation or not, I wasn't sure, but it just seemed sensible.

Q Okay.

A And I was thinking that maybe if I had a note about a deposition from a defense expert, it might be here, but I didn't see any.

Q Okay. Now, other than counsel for defendants and other people in your organization, have you talked to anybody in the course of doing your work on this matter? You can exclude me.

A Thanks. That's very logical. I like that.

There was a Dr. Mayer I talked to on the telephone.

Q Anyone else?

A I'm thinking. Just a second.

That is all.

Q Roughly when did you talk to Dr. Mayer?

A I can tell you better than that.

page 16

page 17

Q That's great.

A The 18th of July.

Q And in the year 2000; right?

A Yes.

Q That was a telephone conversation; correct?

A Yes.

Q Who initiated the conversation? And in case telephone tag went on, I'm going back to the true first call in sequence.

A Well, I'm not sure, but this was the telephone tag of all time. We must have had seven or eight attempts back and forth over a period of five or ten minutes, because he was in a hotel and my phone was broken. And I think I called him, but I'm not sure of that.

Q Recognizing you are not positive who called who, take that as an objection to my question, why did

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

you call him?
A Let me just -- by the time the tagging was over with, I had called him three or four times and he had called me three or four times.
Q Right.
A Just to clarify what I meant by that.
Q Sure.

page 17

page 18

What prompted the call?
A I'm not a medical doctor, and I don't have the expertise of a medical doctor. Still, having reviewed materials of the kind one -- an expert like myself might review, I see medical opinions when I read them.
And -- but I thought in talking to -- I believe it was Murray Garnick, that it would be helpful that I asked a real medical doctor some of the questions that I thought I understood the answers to already and just see if I was on the right track.
And they said that would be fine. And so I had a list of questions all prepared, and I asked them and he answered. It was probably 20 minutes total.
Q Do you have a list of the questions and/or answers with you?
A Yes. That's one of the things I brought.
Q Okay.
A It's written rather quickly and not always easy to read because of my handwriting, but this is the questions and answers that I had; it's in my hand now.
Q Okay. Were there any answers that Dr. Mayer gave you that were inconsistent with the view you had going into the conversation?
A No.

page 18

page 19

Q Have you reviewed any tobacco company internal documents in connection with your work on this case?
A No.
Q Have you in connection with your work on any other case?
A I say no because I can't think of any, but it's sometimes plaintiff lawyers put documents in front of you you haven't seen before, and so that possibly there's an exception of some kind. But I think the answer's no.
Q Had you talked to medical doctors prior to talking to Dr. Mayer in connection with your work on any of the other tobacco litigations?
A I can't think of any other, but it's possible. Because we are going back several years, and I could have just forgotten.
Q Okay. Have you ever conducted a thorough review of the economic literature regarding the impact of smoking upon cost, medical costs?
MR. GARNICK: Objection to form.
THE WITNESS: Well, I've reviewed several articles on that on different -- you might characterize it as thorough or not, but I reviewed the ones that I saw that were cited. And best way to handle it from here is you

page 19

page 20

could show me an article, I can tell you if I've seen it before.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

BY MR. ANGLAND:
Q I recognize the word "thorough," and I think that's the basis, probably, of counsel's objection, may be a little vague, and I'm trying to distinguish the following: I, for example, personally have probably read, say, 15 articles on that topic that people have sent me from time to time.

But I frankly don't know whether those are 15 out of 15 or 15 out of a hundred. I never set out myself to research the literature and find out pretty much what's everything or near everything that's out there.

So I'm putting aside -- I acknowledge that you have read a variety of articles, indeed you cite some of them. But have you ever sat down yourself and said, let's see what is out there in the professional literature on this issue, and really try to pull the -- if not all of it, at least the vast majority of it together and review it?

MR. GARNICK: Objection to form.

THE WITNESS: No, I've never done exactly that. I have reviewed what I thought made sense for me to review

page 20

page 21

at the time and with a clear focus of reviewing the work of, say, Dr. Harrison or Dr. Harris.

And sometimes there would be citations or issues brought up where further literature reviewing seemed sensible to me, and that's how I approached it.

BY MR. ANGLAND:

Q As you sit here today, can you recall the names of any published materials on the impact of smoking upon healthcare costs that you have read?

MR. GARNICK: Including ones cited in his report?

MR. ANGLAND: He can exclude the ones cited in his report; that's fair.

THE WITNESS: Why would I do that? Those are the ones I mainly read.

BY MR. ANGLAND:

Q You can certainly list them. I'm just trying to save you time. The first line of your answer can be, to begin with are the ones in my report. I accept that.

A Okay. Let me pick some that come most prominently to mind, and I think you have -- if I can digress a second, I think you noticed already that I don't always answer your questions literally because I am trying to be helpful and sometimes just a literal response is not as good. If you decide that's not

page 21

page 22

helpful, you just tell me to tighten up, and I'll do that.

Q Okay. We will see how things progress.

A So I was going to pick a few that seem more prominent, even though you didn't say, tell me the prominent ones.

The Manning study was one that I read some time ago, it's a Rand study. I forget who the authors are.

Q I realize I may be cutting you off. I'll let you continue.

While we are on Manning, I know he wrote at least an article in 1989 and a book in 1991. Do you know if what you are referring to is either or both of

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

14 those?
15 A I think it may be. In both cases they refer
16 back to the actual study that he did that involved
17 surveys and people, and so what was sticking in my mind
18 was the activity, not exactly where he reported it. I
19 would have to look in my footnotes to see exactly the
20 articles.
21 But the Manning work, as written up by Manning
22 in a couple of places -- before I lose my train of
23 thought, let me just -- I remember in some of these I
24 read before this case of Vogt and Schweitzer, was a
page 22
page 23
1 prominent article that stuck in my mind.
2 And I noticed more recently one -- I think it's
3 by Ashford. I remember reading a couple of Dutch
4 authors wrote something I read a couple years ago. I
5 don't have the title in mind, but I remember the
6 substance of it. It was one of the lifetime analyses
7 having to do with costs.
8 And there are a number of others, as you
9 invited me, that I've cited in my report. And if I --
10 and I don't have any in mind that I didn't cite.
11 Q Going back to Manning, first of all, do you
12 consider that analysis of his that you read a reliable
13 piece of work?
14 MR. GARNICK: Objection to form.
15 THE WITNESS: Well, I wouldn't want to endorse it or
16 criticize it in some blanket way like that. I thought
17 that it was one of the more sensible things, and I hope
18 I'm remembering right. I'm far better at answering
19 questions about Manning if you would give me a document
20 and I could refresh my recollection.
21 But as I recall, Manning looked at
22 smoking-related diseases -- and I probably shouldn't
23 comment; I might make a foolish error from lack of
24 memory. I think if you want to ask me questions about
page 23
page 24
1 Manning, I would hope that you could give me the
2 document and then I could just quickly refresh my
3 recollection.
4 But venturing boldly forward without the
5 document, I think he was looking at smoking-related
6 diseases and doing some correction for confounding two
7 things taken together, which I think are important for
8 doing this kind of work.
9 Q As you sit here, do you recall having thought
10 there were particular problems with Manning's analysis?
11 A No. I haven't thought about critiquing
12 Manning's analysis. I've had my hands full working on
13 the Harrison and Harris, others here.
14 Q A few moments ago you said you were going to
15 start by listing some of the more prominent articles.
16 How do you use the word "prominent" in this context?
17 A I meant prominent in my mind, the ones that
18 come most quickly to mind.
19 Q You referred to an article by Ashford?
20 A Yes.
21 Q Can you tell me in general what that article
22 was about?
23 A From memory, all I can tell you is it had a --
24 just a part of it that I thought was interesting and

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 24
page 25
consistent with a view that I've expressed in my report, and that is the difficulty, or maybe the error is a better way to say it, of equating mortality outcomes as between smokers and nonsmokers to cost outcomes.
Q Did you reach a conclusion that the Ashford article was a good enough article to rely upon?
MR. GARNICK: Objection to form.
THE WITNESS: I don't think I relied on the entire article. What I -- all I was trying to do in response to your question was tell you from memory that there was this one article I looked at and this author, Ashford, was of that view.
And it's a view I hold, makes perfectly good sense, from my understanding and analysis. And so I have -- I credit the Ashford view basically because I had the view myself before I even read Ashford.
BY MR. ANGLAND:
Q You mentioned that one of the first things you did when you got expert reports was to see if you could replicate the number-crunching in the reports; is that fair?
A Yes.
Q Okay. Putting aside Dr. Harrison for a second -- strike that. Do it this way.
page 25
page 26
Were you able to replicate Dr. Max's results?
A Let me think if I did that.
I've seen Dr. Max's calculation in other cases, and so I understand it well. I'm just going to have to look to see if I did a replication here.
Q Sure.
A I'm going to look for a moment, then. I don't want to hold you up. I'll just look further during a break.
Q That would be fine.
By the way, I'll mention, I'm going to ask the same question about the other experts, so if you are going through and you see references to them, you might want to bear them in mind.
A Yes. These replications were scattered around and not indexed or organized, so I'll -- as you invite me -- I notice on Tab 2, I see that I've got on a couple pages in here the Harrison -- I think this is Harrison. Just a moment.
Yes, this is the -- it doesn't say so, but it is the Harrison -- what he calls the kids model replication on pages 3 and 6 of my Tab 2 in this binder that has the title "Code and Output," Tabs 1 through 13.
See if I see anything that looks like Max in
page 26
page 27
here real quickly; and if I don't, I'll just look for --
Q I'm happy to defer to another one.
A Here's another one. Here's Harrison.
Q On Harrison, I know you have done replications of Harrison, which is why I was going to put him last. I was really asking about the others.
A Why don't I make note where, if ever I can find the Max replications. And sometime when I get a chance here, I'll see if I can find that.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Do you recall replicating any of -- strike that.
Do you recall attempting to replicate any of Dr. Fisher's computations?
A No, I did not.
Q Did you -- do you recall attempting to replicate Dr. Harris's prevalence computations?
A Yes. But let me be sure we are thinking alike here. I would be thinking of his spline calculation where he fits quadratic spline with a couple of knots to some prevalence data, and I'll call that his prevalence calculation.
Are we thinking alike?
Q I thought it might be a cubic spline.
A No, I thought --
page 27
page 28
Q I could be mixing up the two. It was the only spline equation I recall his using, so I think we are okay.
A Okay. Right. So he does a number of prevalence calculations here, there, and I've followed them along pretty carefully.
Q Okay.
A And I think that replication I'll have in here.
Q Were you, in fact, able to replicate his numbers?
A Yes. I can get his numbers. And maybe during the course of the day we will find the right tab that has it in. I don't have them organized in that fashion.
Q Okay. Did you attempt to replicate Dr. Harris' computation of conduct attributable for actions?
A Just one second. So you said Harris?
Q Harris, but now referring to conduct attributable for actions.
A Yes.
Q Were you able to replicate them?
A Well, yes and no, because he sort of starts -- his starting point is not something that could be replicated. He uses judgment and -- to get his calculation going. But once he gets to the computer, I
page 28
page 29
can make the computer do what he made the computer do.
Q And just to be clear, when I'm asking about replication, that's all I'm implying.
A Yes.
Q Not that you think it's right or the premise is correct. I'm just looking for code errors or math errors -- no, let me back up. That's the next point I'm going to.
At this point, I'm just looking to see that nothing went wrong between the data and the program, that is that you were able to take the data and the program he uses and get the same numbers.
A Yes. Because I'm just running his program. And when I run his program on his data, I get his output.
Q Okay. Now, let's refer to Dr. Harrison's report --
A I'm going to take a note here so I can pay attention to you. I'll just hold you up for a second.
Q Sure.

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

A What I'm doing here, so it's not a mystery, is that your questions are broad, and it encompasses all the work I've done. And if I think harder about this during a break, I might have a supplement to my answer,

page 29

page 30

so I want to jot those down.

Q That's fine.

A So I'm paying attention now.

Q Okay. And feel free to do what you just did sometimes.

A Thank you.

Q It's not obvious to me when you need a pause and when you don't. I'll certainly accommodate.

Let's jump to the coding issue now.

Did you have anything -- with respect to Dr. Harris, anything that you believed to be a coding error in his programs?

A No. I didn't organize my thoughts in terms of types of errors like that. Maybe I can -- the best thing I can do is look at my reports where I point out criticisms and see if they would fall in that category.

Q Actually, I can simplify it, because I think I know what's in your report. I was really looking to see if you found any coding errors that aren't in your report.

A I don't think so.

Q Okay. Let's go to -- and by the way, that last question about Harris I didn't limit to either of his two different reports; I was including both his

page 30

page 31

causation report and his prevalence report. Is that how you understood it?

A Yes. Yes.

Q Okay.

A I'm just thinking, you will pardon me for a moment, I hope. Okay. I've got the gist of that question. If I think of one that I couldn't think of now later, I'll add it.

Q Okay. Did you successfully replicate Dr. Harrison's computations in the report that he submitted late last year, his principal report in this case?

A Yes.

Q Did you identify any coding errors in Dr. Harrison's programs?

A You know, I'm having trouble with that kind of question. I found errors and I've indicated them, but I don't know whether to call them coding errors or --

Q Let me give you a concrete example.

A Clarify. Most everything he did he implemented in code, and so you could say it's a coding error. And so I'm not quite sure how to answer it.

Q Let me give you an example and see if that can illustrate it.

page 31

page 32

Dr. Harrison did make a coding error back in November of 1999 in that the way he wrote his code -- this will be right in concept, even if I can't recall if it's one or zero.

But if one had high blood pressure, it was

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: https://www.industrydocuments.ucsf.edu/docs/ttgd0001

coded as zero, and if one didn't have high blood pressure, it was coded as zero, it was a typographical error where -- were there any other errors of that sort as you can recall identifying?

A See, I can't -- that's the problem. I can't always tell if he is doing what he intends to do and had a typographical slip in the process or what. Sometimes he does things that I wouldn't do, and I think they are mistaken. And so I'm just -- let me give you an example.

He did something with his variable called, I think, "I ilk," having to do with alcohol abuse. And I thought it was not sensible and I criticized it. I can't tell you if that's a typo or a coding error or whether he just thinks different than I do.

And that's -- so it may be that there's some cases that are so clear that you and I would immediately agree they are coding errors. But mostly I think they are blurry, and I'm not sure I can pull out coding

page 32

page 33

errors from any others.

Q Now, Dr. Harrison submitted several weeks ago an updated report?

A Yes.

Q And I believe, judging by the electronic media we recently received, you did attempt to replicate what he had done there; is that correct?

A Yes.

Q Did you succeed in replicating it?

A Insofar as I've gone. I haven't -- let's see. I'm finding his report here. Just a moment. Well, this is July 14th we are talking about?

Q That's correct, July 14th, 2000.

A As opposed to some stuff that came later. So I think I've finished and replicated the July 14th work.

Q When you say you have replicated, does that mean you have successfully replicated?

A Yes, I believe so.

Q Okay. I'll again ask about whether you identified any coding errors there, and I incorporate by reference your observation that the line between a coding error and an analytic error can sometimes be blurry.

MR. GARNICK: Objection to form.

page 33

page 34

THE WITNESS: Yeah. I don't have in my mind that distinction that I can make easily, but when I have identified errors, I've pointed them out in my report.

Oops, I guess I haven't, because it's a May report.

BY MR. ANGLAND:

Q Right.

Just so we are clear here, I'm talking about the last -- I'm talking about the analysis that I believe would be reflected in the most recent materials received from you, where you have not as of yet been asked to prepare a report.

A Right. I'm catching up with your question now.

Q Okay.

A And the best way for me to answer that is just to go through those materials.

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Well, I'll tell you, we will do that later on. So I'll accept that as the answer for the moment, and then we will pick up on this a bit later.
A Okay. Thank you.
Q Now, you have a consulting firm that you run; is that correct?
A Yes.
Q And what's the name of it?
page 34
page 35
A William E. Wecker Associates, Incorporated.
Q And I take it that some of the people at that firm have assisted you in connection with your work on this matter?
A Yes.
Q About how many people are employed by your firm?
A About 20.
Q And about how many of those people assisted you on this matter in what I would call a nonministerial way?
MR. GARNICK: In connection with these reports?
MR. ANGLAND: In connection with this lawsuit.
THE WITNESS: Well, I've -- I think I could answer that with a number, but I'll have to struggle for a number because I've worked mostly with one person, maybe two. And then they, in turn, may be getting help from others, and I'm pretty sure they are.
And I'm pretty sure I know the names, but I couldn't get you a perfect number. Let me just do my best to give you a rough number.
BY MR. ANGLAND:
Q Actually, I'll withdraw the question to simplify it and instead ask you to identify the people
page 35
page 36
you have principally -- by name, the people you have principally worked with.
A Mainly Gary Harvey. And I think if you wanted to call it "principally," he would be the principal person I've worked with.
Q What's Mr. Harvey's background?
A Master's degree in applied mathematics.
Q Where did he get his degree?
A From the Air Force Institute of Technology.
Q How long has he been working for you?
A About five years.
Q What functions has Mr. Harvey performed for you in connection with this matter?
A He does whatever I ask.
Q What did you ask him to do?
A Well, I said, okay, I've got a bunch of materials that have arrived on my desk, whether they be CDs or reports. And I would say, here, make copies of these, you read them, I'll read them, let me know what's on the CD. And we sort of go step-by-step from there.
Q Roughly how much time have you devoted to this matter?
A I would have to look at time records to do a good job of this, but it's many weeks, I'd say. It's
page 36
page 37
not a few days, and it's not half a year, it's somewhere

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

in between.
Q If we -- first of all, the days that you worked, or weeks that you worked on this, I take it you didn't always work the entire workweek on this; you might have been doing other matters at the same time?
A Right. Right. My work would be sporadic.
Q Okay. If we could try to use hours as a metric to --
A I'm not going to be able to remember the number of hours without looking -- I've got time records, and I could if I was asked to do so. I know how to go to files and figure this out, but I don't keep these sporadic hours in my head.
Q I can and will ask counsel for that information. But with the -- recognizing that you don't keep those hours certainly precisely in your head, are you capable of even estimating some range within which your hours on this matter have fallen?
A I can do it at risk of error.
Q For the moment, I'll take what you can give me.
A Okay. I'd say more than a month and less than four months.
Q And when you say, "a month"?
page 37
page 38
A As if it were full-time.
Q Okay.
A Not a calendar month, but a month of hours of regular work hours.
Q Okay. And for you, about how many hours are there in a month?
A Your question attempts to bring precision beyond my answer.
Q A round number will be accepted.
A Oh --
Q Is 200 hours an approximation?
A If you really want to know how many hours I work in a month, it could be -- it can average 15 hours a day times 30 days. But I was just using a month in sort of broad terms, as maybe 25 or -- 25, eight-hour days, maybe something like that.
Q Which would be 200.
A But it's -- I can tell I would have been better off to not try to answer this. I really don't have those numbers in my head. I know where to get them. If you want an answer to that, I know how to get it, and then I can give you an accurate answer.
Q All right. I would like that information.
A Let me pause and get a glass of water.
page 38
page 39
Q Sure.
MR. GARNICK: Should we go off the record for a moment?
MR. ANGLAND: Sure.
THE VIDEOGRAPHER: We are going off the videotape record. The time is 10:45 a.m.
(Recess taken.)
THE VIDEOGRAPHER: We are back on videotape record. The time is 10:46 a.m.
BY MR. ANGLAND:
Q Can you estimate the number of hours that your staff has spent working on this matter?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

A No. I would have to go to records to do that.
Q And in particular, could you estimate the amount of time Mr. Harvey has spent working on this matter?
A No. I would have to ask him, and he would probably have to send me to the same records I was going to.
Q Do you know who has spent more time working on this matter, you or Mr. Harvey?
A Probably Mr. Harvey, but I don't know that for sure.
Q In the course of your work on this matter, you

page 39

page 40

have relied upon a fair number of computer programs generated for the purpose of this matter; is that correct?
A Yes, generated, some by me and some by the plaintiff experts.
Q And with respect to the computer programs generated by you, can you indicate which of them, perhaps by category, you personally did and which, if any, other people on your staff wrote?
A They weren't done that way. We would meet and discuss, say, the particular program of -- and I'm picking a typical case here of, say, one of your experts. And we would say, well, let's change this piece right here, and we will change it so in the following way.
And after a discussion, that made sense to do that. And then I would pick somebody to go off and do that and then come back to the next gathering, maybe that same afternoon, say, okay, let's look over what you got here.
So sort of a joint process.
Q So you are -- strike that.
Did you personally check the validity, if you will, of each -- of all the code that was written by

page 40

page 41

your organization to see if it accomplished what you wanted it to accomplish?
A I think I've probably looked at all the code at one time or another, but you can't always rely on looking at code carefully to know that it's doing what you want. There's no one, sure-fire method to make sure that coding is what was intended.
You look at the output, you look at intermediate outputs, and you sometimes simply rely on the work of others who you know to be competent in this area. And it's really a combination of all those things together.
Q Is there any of the code that you personally wrote?
A That was written -- these codes were usually written in group sessions. So we would say, here, let's comment this line out here. And I might take my pencil, but I didn't go to the keyboard and type it in; I just have somebody else do that.
Q Could you estimate what portion of the code generated by your organization you actually originated?
MR. GARNICK: I want to object to form.
THE WITNESS: I don't think it's -- there is a

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

24 single originator of any of these analyses. If -- by
page 41
page 42
1 and large I think -- but I've always said that in any
2 coauthored paper, each author thinks they did
3 80 percent.
4 So my view is that by and large I was the
5 originator of various concepts that got implemented
6 here. But other people who were at the same meeting may
7 have thought that it was their idea first, and I just
8 pirated it. And you can't be sure how to separate those
9 thoughts out.
10 BY MR. ANGLAND:
11 Q Would it be possible, if I were to point to a
12 particular code in the binders you have before you
13 today, for you to identify whether it's code you, as
14 opposed to somebody else in your organization,
15 originated?
16 MR. GARNICK: Objection to form.
17 THE WITNESS: You keep using what I say as a false
18 premise.
19 BY MR. ANGLAND:
20 Q Let me withdraw the question to acknowledge the
21 point you made. Because I did assume that it was either
22 you or others in your organization, and I think it's
23 fair to say that you were saying it could be a
24 collective effort as opposed --
page 42
page 43
1 A It was.
2 Q Okay. So let me rephrase the question that way
3 in light of that.
4 Were you involved in the creation of all the
5 code created by your organization?
6 A At some level I think that all, yes, would be
7 the right answer. But when you first get started in an
8 analysis, you are vaguer than you are later on, and the
9 ideas are more vague. But in the sense of being the
10 principal director of this activity, I think it's fair
11 to say I was involved in all aspects of the project.
12 Q Have you retained copies of all documents that
13 were created by you and your staff in connection with
14 your work on this matter?
15 A Most things that I would call created we never
16 printed, but -- so there's much more that we have
17 disclosed then than is present in my binders, because I
18 wouldn't have time and I didn't think you would have the
19 interest that I print everything. Let me answer by way
20 of process.
21 In coming here, I went all around my office,
22 and I just picked up things that looked like they were
23 part of this case. And I threw them in various binders,
24 and I didn't leave anything. There was nothing sitting
page 43
page 44
1 there when I left my office.
2 Q Were there any computer runs done in connection
3 with this matter that didn't wind up being reflected in
4 the electronic media that we received?
5 A I don't know of any, but I know there must be
6 because that's just the way this process works. You
7 don't write code and have everything go right the first
8 time.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

And so it's a process that -- where the first thing you see on the computer screen is that the code bombed because you didn't do something right. But you don't -- I don't save that sort of thing, and I don't ask others to save it.

Q And let's put that aside.

I think the situation with the code bombs is essentially where the program doesn't run?

A That's an extreme case, but I meant it only as an example of others that might be less extreme. As you eventually get to an analysis that you are convinced is correct, then along the way, there's sometimes failed attempts that might be something other than just the computer bombing.

Q In what sense might another attempt fail?

A Well, you get an answer and it just looks

page 44

page 45

crazy, and you say, something's wrong here. And I try to figure out what the world went wrong. And I see, oh, I didn't do what I intended to do.

Q One of the things you did in the course of your work was do various sensitivity analyses; is that correct?

A That's true.

Q And you report on a number of them in your reports?

A Yes.

Q And you have provided us with code pertaining to them on electronic media; correct?

A Yes. I think we are thinking of the same thing.

Q Were there any sensitivity analyses you did testing for -- other than those that you provided to us?

A Not that I'm aware of. There's always the possibility that one of the people that was working on this tried something on their own, but they never brought it to my attention. And so -- and I certainly have got everything that I ever saw included here.

I'm just acknowledging the possibility. I don't know if it happened or not. But everything that I saw, everything that I directed I think is represented

page 45

page 46

here.

Q Let's take an example. I think you do an analyses, I'm not sure whether one would characterize it as a sensitivity analyses or not, but an analyses relating to a SAF, which is an acronym for smoking attributable fraction, I'll state for the record, relating to automobile accidents.

Do you know what I'm referring to?

A Sure.

Q And I think you do a similar one for conditions associated with mental disorders?

A Yes. This was the recent work I believe you are talking about.

Q Actually, I think you did it both times.

A Okay. Well, I know I did some very recently.

Q Okay. Those are two possible things that one could run a SAF for, but there are many others, aren't there?

A Like what? These are examples that I thought

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

were the best things to do, and I've been doing calculations just like this before this case came around. So they stand in a special category, in my view, as opposed to just one of 20 things you might do.

Q But there are certainly others that you could

page 46

page 47

have done?

A Maybe I would choose not to do them. Maybe you would do something, and I would say I don't think that's a good thing.

Q I'm not criticizing you; I'm just trying to explain what I'm asking about in terms of files that we don't have.

A I'm sorry. I don't mean to argue, but I have a point I want to make sure is clear.

Q Sure.

A I don't want to leave the impression that these were two things from among 10 or 20 possibles and it was more or less a matter of choice or cherry-picking that I picked those two. That's not the case.

I've thought from the very beginning mental disease, that would be a real good example of something that everybody agrees that smoking doesn't cause, and yet everybody -- I don't know if everybody, but there's widespread agreement on that and widespread agreement that smoking is associated with mental disease.

So because of the -- I'll use the word again, the prominence of that set of facts that I've come across now for years, even before this case, that's an example that I used to make the same point in other

page 47

page 48

cases and I'm making here.

I agree with you maybe there's other things I can do, and maybe if I have more time, I'll do a few things. But these are not picking and choosing from among an array.

Q I'm sorry. I didn't mean to cut you off.

A I was at the end. I just wanted to make sure I wasn't misunderstood on that point.

Q You are going to exactly the issue that I'm raising.

In the course of your work on this case, did you in one of these meetings with your staff say, here are two things that I want to compute a SAF for, car accidents and mental illnesses? Is that essentially what happened?

A Yes. But there's a history to it, because we have done this before.

Q Okay.

A So we already knew how to do it. We have already thought about it. And so I could say, well, let's do the things we have done before on this to make the same points that we have made before.

This is not the first time that we have seen calculations of this kind, and we are really -- I'd

page 48

page 49

struggle if you next asked me to say which ones are new points and which ones are old points. But a whole lot of thinking I've done on this case is what I've done when I spent months and months, much more time than on

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

this case, thinking about these same issues.
Q Let's take another example.
One of the criticisms you make of Dr. Harrison's model is that he excludes certain variables that he could have included from the NMES database; is that fair?
A Yes.
Q And you then recompute SAFs using his model after including a number of additional variables; is that correct?
A True.
Q Did you ever consider including any other variables from the NMES database when you adjusted his model?
A I suppose at some level the thought crossed my mind, but the variables we included are these ones that have really achieved a certain prominence, both in my thinking and in thinking of other people who have been in other litigation or have just thought about it aside from litigation.

page 49

page 50

So these were the obvious candidates to pick, in my view. There may be some others. And one of the things I'll do here, just because it occurs to me as the sensible thing, and maybe it's appropriate, is I'll look over what some other variables are that seem like they might be arguably of the same stature, and maybe I'll do some more of those. It's a matter of what the court allows and what time I have.
Q My question now is actually directed to whether you have already done it as opposed --
A No.
Q And just to be clear, do you know whether anybody in your staff has done it?
A I wouldn't expect -- not to my knowledge, and I never asked for that. These were variables that are -- that have long standing and are the thinking on these problems.
Q Going back in time to before you began working on this case, I take it that you went through -- from what you said, I take it you went through the sort of thinking with other models and other cases involving smoking-related expenditures; is that right?
A Please restate that.
Q Sure.

page 50

page 51

At some time prior to when you began working on this case, you considered in the context of another case which of these additional variables in the NMES database one might add to a model; is that correct?
A Yes.
Q And I'm essentially going to ask the same question regarding that earlier point in time that I just asked now in terms of this case.
Did you or anybody in your staff, back at any time prior to your work on this case, include any other variables from the NMES database when you added variables to than an expert's model?
MR. GARNICK: Objection to form.
THE WITNESS: I don't recall any, but it's entirely possible that I would just not remember it. It's been

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

some time. I can tell you a little bit more.
BY MR. ANGLAND:
Q Sure.
A The variables that we are discussing often sprang from testimony of other experts, and they are not solely my creature. They are developed in the course of the litigation and the literature.
And it's because of that external development that they are brought to my attention and -- things like
page 51
page 52
the mental disease one, where -- or there might be statements by plaintiff's experts, like Dr. Samet, who would agree in deposition that a certain kind of expense would not be caused by smoking.
And so now it's got a little more of a life in the litigation. And that is a better history if you just want to appreciate how these things come about, of how these variables got chosen.
Q Now, Dr. Wecker, you are an expert in econometrics; is that right?
A I think so.
Q And in statistics?
A Yes, I teach both areas.
Q You are not an economist, are you?
A I'm not.
Q And you are not an expert in economics?
A I'm not.
Q Now, you don't have a degree in epidemiology, do you?
A Not by that name. But I have to do a speech.
Q But to try to shorten your speech, having read it on more than one occasion, epidemiologists wind up using both econometrics and statistics in their work; is that correct?
page 52
page 53
A Yes.
My short speech is that I say it's -- "epidemiology" is the term for the application of statistics and usually statistics or some other areas of applied math to questions of human health.
Q And to the extent that epidemiology --
MR. DUNNE: Wait. I object; he hadn't finished his answer.
THE WITNESS: Yes, I did. I was quite done. It's the application of issues to human health.
MR. DUNNE: All right.
BY MR. ANGLAND:
Q And to the extent that epidemiology involves econometrics and statistics, you are to that extent expert in it; is that your position?
A Yes.
MR. GARNICK: I'm going to object to form.
BY MR. ANGLAND:
Q Now, does epidemiology involve any learning other than econometrics and statistics?
A I think any application of statistics involves the subject matter of the application, so there is no application of statistics where that is not true.
And in that sense, epidemiology is no different
page 53
page 54

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

than industrial experiments or the like. You have to know what an ICD9 code is, and a statistician wouldn't normally know that unless he was working with a medical issue.

But that's the -- that's the yes part of the answer to your question of does it involve other expertise. I don't think it requires you to be a medical doctor, and I don't think that a medical doctor would necessarily do a better job of statistical analyses of issues of human health than a well-trained statistician who is industrious in the applications.

Q Are you a member of any professional associations that specialize or focus exclusively on epidemiology?

A You are going to get a near yes to this.

Q Okay.

A I'm not sure that's what was in your thinking of the question. But I mention that the American Statistical Association has what they call sections, interest sections, and one of the sections is epidemiology.

The -- so when you go to the national meetings, there will be folks who spend most of their time doing things with epidemiology, who might pay more attention

to each other than they would to, say, the industrial chemist versions of a statistician.

And then there's another organization I belong to called the Society for Risk Analyses, and that's basically all epidemiology, at least in the broad sense, where, say, accidents are issues of human health as well as viruses.

Q Now, with respect to the American Statistical Association section on epidemiology -- is that the correct phraseology?

A Yes. I believe they are called section or subsection or something like that.

Q Okay. Are you formally a member of that section?

A No. I don't think you have to be a member of it to -- maybe it's possible to be a member; I don't know. They are just interest sections. I think people attend them without being formal members. Anyway, I'm not a formal member of that.

Q Okay. With respect to the Society for Risk Analyses, you are a member of that organization; is that right?

A Yes.

Q Does that organization have fellows?

A I don't know.

Q You are not a fellow, then, I take it?

A No.

Q Okay. Are you a fellow of the American Statistical Association?

A No.

Q Are you a fellow of any other professional association?

A No. I can be one by joining the Royal Statistical Society, because they are -- everybody's a fellow.

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Right.
Do you subscribe to any epidemiological journals? And by "you," I'm including your organization.
A Sure.
I have to include in the answer that the journal that comes from the Society for Risk Analyses I would call an epidemiological journal. And the American Statistical Association journal does include articles on epidemiology, even though it includes other things as well.
And that -- I subscribe to those two and Technometrics and Journal of Business and Economic

page 56

page 57

Statistics and Annals of Math Stat. That's it.
Q Those latter ones are not epidemiological journals, are they?
A No. But the Annals is; it's more of a theoretical undertaking. If it does have articles, it would interest epidemiologists.
Q What are the leading journals specializing, focusing on epidemiology?
A The leading journal -- maybe I'm not answering your question directly, but the journal that I would think of as a leading journal would be New England Journal of Medicine for -- although it's more broad than epidemiology, it's one of the more prominent ones.
And Lancet is another very prominent one. And then I think probably of lesser stature than those, I think there's a Journal of Epidemiology. Or I see it cited with some of the papers, but I don't subscribe to that.
Q Do you read it often?
A No. I don't get the whole thick journal, so I would only read articles that come to my attention. And for those nowadays you send them off, and somebody copies them and they come back in the mail.
Q Are there any other epidemiological journals

page 57

page 58

that you can identify?
A That's all I can think of offhand. But since there are numerous articles that I've cited, I could just -- and you may say don't bother, but what I would do now is just look through the articles I've cited and see where they are being published.
Q And my question right now is really as you sit here can you recall --
A I'm sitting here.
Q As you sit here, without looking at anything in front of you, can you -- you recall -- I'm sure if you went to a library and looked at a card catalog, you could get me more?
A But that's not fair. I'm not going to a library. I'm referring to articles I looked at here.
Q Right.
A And the name of the journal is not popping to mind here. Like here I see the Canadian Journal of Public Health.
Q Is that an epidemiological journal?
A It's going to have some epidemiologic.
Q Does it focus on epidemiology?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

A Public health, epidemiology, that's close enough for me.

page 58

page 59

Q Are more than half the articles related to epidemiology?

A We would have to get one and look at it.

Q My question is whether you know.

MR. GARNICK: Whether he knows over half the articles?

MR. ANGLAND: Yes.

THE WITNESS: I can't know as a fact, because I would have to have one of the articles here and go through them. Any article that would have a statistical application, the issue is public health -- I'm sorry, health or public health, either way, that would be one I would count as epidemiology.

Whether more than half or less than half of the Canadian Journal of Public Health, we would have to take a look.

BY MR. ANGLAND:

Q I take it you are not an expert in medicine as you such, are you?

A As in medical doctor, I am not.

Q I suppose one could also, in theory, be an expert in medicine having teaching at a medical school the theory of anatomy without actually being registered in any state to be a doctor.

page 59

page 60

You are not an expert on medicine in that sense either, are you?

MR. GARNICK: Objection to form.

THE WITNESS: I'm not an expert in anatomy, and I'm not hiding any tricky answer --

MR. GARNICK: Objection to form.

THE WITNESS: -- or gastroenterology.

No, I don't think there's subtlety to split hairs about here. I'm a statistician. Statisticians work on issues of medicine.

BY MR. ANGLAND:

Q Agreed.

A So in that sense, you try -- I think it would be wrong to draw a line that I'm not an expert on some issue of medicine, because maybe it's the issue of statistics is the important thing to think about.

Q Okay. Now, what Dr. Harrison has done in this case involves what's called an observational study; is that correct? I'm sorry.

It's models based upon an observational study; is that correct?

A Right.

Q Do you have experience, other than in your work on tobacco cases, with models based on observational

page 60

page 61

studies?

A Maybe you want to make the distinction with the word "study," but I'm not sure. If you mean based on observational data.

Q I'll accept that amendment.

A Okay. Because I'm not quite sure if you were narrowing it.

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Sure, thousands of examples.
Q Okay. Can you describe the contexts in which you have been involved in them.
A All manner of different contexts.
Q Let me then focus, first of all, as to whether there are any observational studies that you, yourself, have done -- I'm sorry, yeah, any analyses based upon observational data that you yourself have done.
A Right. I've said, "thousands," so I'll try to pick. Some of them are representative, but thousands for sure. I'll give you some examples, if you like.
Q If possible, if any are published, could you start with them, and then we could go to the nonpublished?
A Most of it would be in the consulting, nonpublished area, but let me -- most of my publications are not in applied areas, so there will be a small

page 61

page 62

intersection here.
Q I appreciate that.
A I'm going to look for it.
On the attachment to my March 6th report, where I have a list of articles -- I'm going to work from page 4 backwards.
Q Sure.
A The last article, which begins, "Correcting for Omitted-Variables," is basically a theoretical article, but I do have an application of the theory. And that application, which is there to illustrate the theoretical point, is based on some observational data --
Q Okay.
A -- I got from reading other journals. The third one from the bottom on page 4 had some observational data on pollution, ozone, I believe was the issue there.
Q Okay.
A My experience with my Ph.D. student from the veterinary school, Mr. Deluyker on page 4 with the course.
Q Okay. I did notice that different subject matter from most of what you have done.

page 62

page 63

A He was a veterinarian getting a Ph.D. in statistics, so he did a thesis about cows. And he had some cow data on having to do with production characteristics of cows.
At the bottom of page 3 there was some data there that is of an observational kind.
Q That's the Soviet grain embargo?
A Yes. A number of these articles have to do with signal extraction, the words "signal extraction" appear in the titles --
Q Yes.
A -- on this page 3.
I have examples. In fact, one in the middle says, "A Data Example." So I have data examples, but these are basically theoretic papers. I'm illustrating the theory, as opposed to studying the data for being the reason for the paper.
Q I appreciate that.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

For the moment I'm focusing on more actually using observational data as opposed to theoretical discussions that might be applied in that case.

A Right. I think in that case I would have -- well, the one about ozone that we mentioned on page 4 was clearly written because I was trying to figure ways

page 63

page 64

to reduce ozone as opposed to invent new theoretical principles or methods.

But everything else, I believe the primary focus was to extend statistical theory so that others who were interested could use the methods.

Q Okay. And again bearing in mind that, for my questions now at least, I'm focusing on using observational data as opposed to contributing to the literature --

A The line's not that sharp. So for example, let me take -- on page 2 at the bottom, "Predicting the Turning Points of a Time Series," the reason I wrote that paper was because I had a new methodology to contribute.

But I applied that methodology to the gross national product data, and predicting recessions is the main thing people want to do when they talk about turning points. So it wasn't just an, oh, by the way, here's an example. So the line isn't that sharp.

And I never would have developed this methodology except I had Victor Zarnawitz constantly asking me how to do it. And he spent his life studying recessions and so -- and this is a normal. In applications of statistics, there's not a bright line

page 64

page 65

that distinguishes the two; it's the subject matter and the theory of methods.

Q Okay. Now let's -- now let's move sort of one level away, or what I think of as one level away from these published papers.

Have you ever done any working papers in connection with the university or something of that sort?

A Yes. There was a working paper series at the University of Chicago, and I'm trying to -- I don't remember the name of the series, but Hans Theil ran it.

Q Okay. And I'm focusing on working papers just because they might -- I realize a lot of your consulting is probably private, confidential, and the materials are with whomever you were consulting for. I'm trying to go to things that are more available to the public, just so you understand where I'm coming from.

Have you done any working papers that deal with the use of observational data?

A I don't -- I recall doing a few papers in his series, but I think they were all just precursors of material that eventually got published and would show up on this list, so there shouldn't be any different answer to that group.

page 65

page 66

Q Let me put the question this way: We have in this case, for example, a study by Dr. Harrison and another study or two by Dr. Harris that applies

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

statistical or econometric methods to observational data.
A Yes.
Q Can you point me to any materials of your own, beyond the ozone article that you referred to a moment ago, where I could go to see how you do that type of analyses?
A I don't think you will find any in anything I've published, because, as I pointed out, my academic publications are on statistical methodology mainly.
Q Okay.
A I can't -- I've indicated some as we have gone along, but I think I have nothing to add.
Q Okay. Now, you serve as a referee and have served as a referee of some journals; is that right?
A Yes.
Q Have you reviewed studies based on observational data in your capacity as a referee?
A Rarely. Most journal articles that I referee are theoretical.
Q Why is that?

page 66

page 67

A It's because most academic publication is on statistical theory, not on these studies of practical matters that take lots of time and money. And professors usually just don't do that.
Q In addition to your work on Holsteins, have you reviewed observational -- strike that.
Have you reviewed studies based on observational data from --
A The whole thing is we did an experiment.
Q Okay. It was experimental.
Then without the exclusion, have you reviewed work by any students of yours that involved analyses of observational data?
A This will take a minute to think.
Q Sure.
A I may have, but I can't think of any. This is one of these I'll write down. After 30 years of students, it's hard to remember what they are all doing.
Q Have you supervised --
A Just a second.
Q I'm sorry.
A Okay. I've got that.
Q Have you supervised doctoral dissertations by students?

page 67

page 68

A Yes.
Q Ballpark, how many?
A Oh, dozens.
Q Okay. Have any of them, do you recall, involved analyses of observational data?
A Well, one springs to mind. Now you are going to ask me what his name was.
Q Or at least what the topic was.
A The topic I remember; had to do with -- he was a finance student who was trying to, I think, study stock market data and bankruptcies. And I've forgotten what the substantive reason for that study was, but I was on his committee, and I helped him develop a new methodology that would allow him to do the thing he

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

wanted to do.
Q And do you recall his name?
A I really don't. This would be in the 1970s. I've forgotten his name.
Q What school is it at?
A He was at the University of Chicago, and he later went off to be a professor at Babson College, I remember. He's probably still there.
Q Were there -- now, in addition to the areas we have talked about, you presumably had dealt with
page 68
page 69
observation -- strike that.
Have you performed observational studies for clients?
MR. GARNICK: Objection to form.
THE WITNESS: I'm not -- I'm going to not adopt the observational study word.
BY MR. ANGLAND:
Q I apologize. That's important phraseology on my part.
A I'll fix it with the answer, so we can move forward.
Q That's great.
A I've certainly studied and done analyses of observational data for numerous consulting projects.
Q Let me distinguish between a situation where you perform a study based upon observational data yourself, on the one hand, and in contrast situations, like the present case, where you are presented with somebody's observational study.
And you could treat it, I suppose, in the sense -- in the course of doing that, in the sense you rerun something, I suppose you could say that's, in some sense, an analysis of observational data. I'm going to distinguish between those two.
page 69
page 70
A I can make that distinction. That's not hard. Okay.
Q And focusing upon the first of those two branches, where actually you perform the study based on observational data, about how often have you done that?
A Oh, I'm thinking of situations that I might do more than one for -- let me give you an example.
For Sears I worked on their inventory control system. It had to do with the data that comes from their cash registers. This was when cash registers were becoming computers for the first time instead of mechanical devices.
So I had data -- Sears being a very large outfit with a lot of cash registers, I had lots of observational data. And I worked for years on methods to exploit that data usefully to keep the shelves stocked well at the Sears stores.
So is that one time? I think not. That would probably -- you know, thousands of different things I looked at. I had a team of folks that were doing other work at my direction.
Q Without asking you to identify the maybe many studies you do under one heading, in this case such as Sears and inventory control, can you identify some other
page 70

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 71
observational studies that you would have performed -- strike that language, studies regarding observational data?
A Let me think of a different example.
Worked on airline traffic and airline reservations.
Q Did you say, "airline litigations"?
A No, not as part of litigation, but as part of consulting. Airline reservation systems, when they were first becoming computerized 15 years ago, there was an issue how to do that, and I worked on that.
Q Let me limit the field a little more to cases where you applied regression analyses to observational data.
First of all, did you do that in the Sears case?
A No.
Q Did you do it in the airline reservation --
A In the broadest sense, yes. Depends what you mean by "regression analyses." I detect from your questions that you are more expert than most lawyers, so if you mean by regression analyses just conditional expectation, yes, but most people don't mean that.
Most people mean by regression analyses Y
page 71
page 72
equals A plus BX, and that's really just a special case.
Q Let me limit myself to that special case and things beyond it, that is, the sort of example doesn't have to be a binary regression --
A There are bound to be examples where I've done that, but being into more exotic methodology, it's usually I don't get called when that simple stuff works and I'm -- I'll see if I can. If you don't mind, this is my -- have I ever done observational data with linear regression.
Let me think for a moment, just in case something comes to mind. No, I can't think of anything where I did that.
Q And would the answer be the same if I switched to nonlinear regression?
A No. No. I've done a lot of that.
Q Okay. What do you -- give me an example of the use of nonlinear regression in one of your studies.
A I'm trying to think of an easy one.
Well, the Sears application we talked about earlier I'll pick on, because we have already discussed the background. There the models I was using were -- they were conditional expectations, because you like those kinds of results, but they were not based on
page 72
page 73
linear models.
Q In what sense were they based upon regressions? Certainly you can have conditional expectations that are not based upon regression analyses; right?
A Well, that's where I -- I think regression is what you -- how you define it. To me regression -- and I think I would have a lot of people on my side on this point, regression is just conditional expectation, that's what it is.
Now, when it comes down to how are you going to

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

do it, you get all balled up in the mechanics, but that's what it always is.

Q Now --

A It's a -- I'm sorry to turn this into a discussion, which I know it should not be. I know I should just be answering your questions.

But the -- we are really talking about how you choose or I choose to define that word, and it's not -- I don't think there's a standard, accepted definition. That's what I think of when I think of regression, conditional expectation.

Q And just to make sure we don't have a definitional problem one level back, when you talk about a conditional expectation, you are talking about

page 73

page 74

something on the form of Probability A, given some vector of other characteristics?

A I mean essentially that. I mean the mean of a distribution of something of interest where that distribution is conditional on whatever information you have.

Q Again, I'm just trying to get a better understanding of how you use the terms.

If my scan of the room was right, which is why I was looking around, by the way, I didn't mean to be disrespectful and look away from you when you were talking, but I was trying to count the number of people in the room who were wearing glasses who were men.

So while the probabilities of somebody in this room wearing glasses would be there's a two of the seven -- this is if I counted the right number of people, two of the seven people are wearing glasses; however, conditional upon the person being a man, the probability of wearing glasses is two out of six.

Have I correctly described the room, and does the terminology make sense to you?

A Yes. I don't think we are quite matching.

Q We are probably not. I'm just straining to get there.

page 74

page 75

A You said things that are true.

Q Okay. Now, the probability of wearing glasses, conditional being upon a man in this room, is therefore one-third; is that right?

A Yes, and nothing else.

Q Did I just do a regression analyses?

A In very -- so rudimentary that it loses the spirit of regression. You have brought in -- actually, you brought in another variable in disguise, but you didn't -- it was a trick question.

Because you brought in some indicator variables by accident, and they were implied by your -- you can do the calculation in the way that makes it look more like a regression if you bring an indicator, variables for men and women.

And you could set this whole thing up like a regression, but, in fact, your example is so simple that it wouldn't occur to anybody to do that. They would just condition by dropping out some folks and talk about the new population.

Q The example I gave, do you think of that as

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

being regression analyses?
A No. I think that's too simple to really -- to normally merit the term.

page 75

page 76

Q Okay. And I certainly do not quarrel with that.
A Yeah.
Q I've never prided myself on being able to do regression analyses mentally. I'm trying to get from you where you draw the line between stuff that is too trivial to deem regression analysis and stuff that is regression analysis.
A I don't draw the line. Except for this conversation, it's never come up in my life. The reason it's come up today is you have questions with the word "regression analyses," and I think in both of our interests we wanted to try to have as good an understanding as we can as to what is encompassed by that term, in my mind.
Even your simple situation would be encompassed by that; it's just nobody would say it that way because it's too simple. Usually you have more than one variable. You have observed at least two phenomena. And you are trying to make estimates or statistical assessments of some kind, of one as a function of the other one, when the other one is large or small.
MR. GARNICK: Take a break.
MR. ANGLAND: Sure. Let's go off the record for a

page 76

page 77

few minutes.
THE VIDEOGRAPHER: We are going off the videotape record. The time is 11:37.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the videotape record. The time is 11:42 a.m.
BY MR. ANGLAND:
Q Dr. Wecker, do you hold yourself out as an expert on the health effects of smoking?
MR. GARNICK: Objection to form.
THE WITNESS: Yes, in the sense that I've studied them from the point of view of a statistician for some time.
BY MR. ANGLAND:
Q You have studied, as I understand it, perhaps, among other things, the impact of smoking on the costs of healthcare; is that right?
A That's a separate matter. I took your question to mean associations between smoking and various diseases.
Q Okay.
A But I've also done -- well, I've done the work I've done in this case and similar work in some other cases.

page 77

page 78

Q What diseases does smoking cause?
A I don't know about cause, but there's a lot of people who say they do. And so you want me to say what others say?
Q No. At the moment I'm asking for your opinion as somebody who believes he has expertise on the health

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

effects of smoking regarding what diseases smoking causes.

MR. GARNICK: Objection to form.

THE WITNESS: As a statistician, I can't tell you that. That takes some knowledge outside of statistics, because we have no design experiments to allow us to reach causal opinions.

BY MR. ANGLAND:

Q And it may be that -- if my question was inartful, I apologize.

But what I'm really going to is that issue that, if I understood correctly, you are saying is beyond where your particular expertise is. So let me just make sure I'm on the same wavelength.

Are you an expert regarding what diseases smoking causes?

A No.

Q Are you an expert regarding what diseases

page 78

page 79

smoking exacerbates?

MR. GARNICK: Objection to form.

THE WITNESS: If by that you mean causal exacerbation, no. I think that's what you mean.

BY MR. ANGLAND:

Q That's what I mean.

A No. But I'm certainly aware of what the surgeon general's lists say and what other people say. I'm just saying I can't prove one way or the other as a statistician with one experiment or another.

Q What diseases does the surgeon general say are caused by smoking?

A Well, I think the surgeon general -- the surgeon general reports are written by committees, and you can find one chapter that's real definite one way and others are real vague.

But if we would take the '89 surgeon general report as an example, there's a table in there called, "Smoking-related Diseases." It's not ICD9 codes. Notice the title is not called, "Smoking Cause"; it says, "Smoking-related Diseases."

So it's kind of vague on the point as to whether that's a list of diseases that are caused by it. And in some places in that same surgeon general report,

page 79

page 80

same year at least, different volumes, they discuss the fact that from the statistical evidence alone, even with strong associations, it's not scientifically correct.

It may, in fact, lead to an error, is why it's not correct to conclude that just strong associations necessarily mean cause, so they point that out. But then they think about it, and they bring in expertise of other areas. And they -- I think their term is that they say it's a judgment that they make.

Now, I think that's the word that they actually use. They say, it is our judgment that these particular associations are causal. Now, here I might be wrong, but I think then they say, and the diseases that it's our judgment are causal are in the smoking-related disease table that you can find in the report.

So that's the end of my answer.

Q Do you recall what diseases those were?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

A Well, there's -- I can't memorize them. There's a long list of them; cancer, heart disease. They have various detailed cancers.
Q Do you recall which cancers?
A I would rather look at the table. I would make a mess of remembering the different kinds of cancers. Lung cancer certainly.
page 80
page 81
Q Okay. All right.
Did you come to any conclusion as to whether the surgeon general -- strike that.
Do you agree with the surgeon general's judgment that those particular diseases are caused by smoking?
MR. GARNICK: Objection to form.
THE WITNESS: I don't agree or disagree. That's my earlier answer. It's not something I can say is caused, and if someone says it's caused, I can't say they are wrong. It might be.
BY MR. ANGLAND:
Q Okay. So with respect to lung cancer, for example, do you have a view, based upon either work you have done or what you have read, as to whether smoking causes lung cancer?
A Not as an expert in statistics, because there's an absolute bright line there. And so from my own expertise, and that's who I am, after all, is the statistical person, I can't say that one way or the other.
But I can tell you from what I've read that there's widespread agreement among people who have made that judgment that that is true, but you can't prove it
page 81
page 82
with statistical arguments; you have to use other methods.
Q Do you have expertise in -- with respect to ascertaining the causes of changes in smoking prevalence?
A Well, I have expertise in the sense that I know how to design experiments to look into that.
Q Have you, in fact, analyzed that issue yourself?
A Not from a causal point of view, because I don't have experimental data. Oh, I take it back. There was an experiment that was interesting. I can't think of the name. There was -- seemed like it was done in maybe Wisconsin or maybe Minnesota.
Q I think you -- could you be referring to the COMMIT trial?
A Yes. Yes.
Q I picked that up mainly -- simply because I recall you cited it in many of your reports.
A I just recalled a name. So there have been some experiments or at least interventions which are kind of an experiment.
Q In general, I'm not asking for precise numbers here, what, if any, changes there have been in the
page 82
page 83
percentage of the American population that are current smokers in 1954 on the one hand and the year 2000 on the

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

other?
A I think there's a nice chart of that in -- I believe, in Harris. The male prevalence has gone down, and the female prevalence has gone up.
Q Let's focus on male prevalence for the moment.
Do you have an expert opinion regarding why the prevalence of current smoking on males is decreased over the last several decades?
A I'm willing to venture it's a matter of those individuals' choices; I can see that much. But as to why their choices are what they are and what are the elements in their choosing, I don't know.
Q Would the same be true for any changes in the prevalence of smoking, smoking among females?
A Same answer for that.
Q Regarding the effectiveness of anti-smoking programs, we talked a second ago about one of the articles published regarding the COMMIT study. Do you know what I'm referring to here?
A Yes.
Q Other than that particular article that you cite in your report, have you read any other published
page 83
page 84
materials on that subject?
A I think in the surgeon general report, not '89, but I think later, and I'm not sure of the year, could be '98, I'm not sure, there's some language in there about the ineffectiveness of smoking -- of programs to change prevalence of smoking. If you ask me exactly where that is, I'm not going to do a good job.
Q Have you read the most recent surgeon general's report, the year 2000?
A I think I've seen some of that, yes.
Q This would have come out in the last two weeks, I think.
A Yeah, it's very recent. I think when I say some of it, I think someone in my office had portions of it. Maybe they were getting it over a fax machine or something. It's possible that's where I saw it. I know I've seen a surgeon general report, this comment that I made. And it was a recent one, not '89.
Q At the risk of being philosophical, I'm trying to go back to one of your points, can one ever establish causation purely using statistics?
A With experiments you can.
Q Okay.
A I think there's a bright line between
page 84
page 85
experimental and nonexperimental. And I'm willing to think of the bright line as having the ability to do causal statements on one and not on the other.
If you really wax philosophical on the word "cause," you get into quantum physics and very deep thoughts that I think are not practically of interest to the issues.
Q Well, I wasn't going to go all the way to the uncertainty principle or anything, but if -- let's take the example of Isaac Newton, and let's say rather than coming up with a theory and a formula for gravitational attraction, he simply dropped an apple a million times and saw that each time it went down rather than up.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Could one infer from that, in your view, that there's a force that will cause objects that are dropped to go down as opposed to up?
MR. GARNICK: Objection to form.
THE WITNESS: Two aspects to my answer.
The first is that I would say Isaac was performing an experiment, and so a little bit different than the observational data. And he's choosing apples, and he's deciding when and where to drop them.
The second, that if he concluded that there was a force, depending how he defined the word "force," it

page 85
page 86

appears that he would be wrong, because what he was really observing is a curvature of space time.
BY MR. ANGLAND:
Q Yeah. I suppose we can amend it with the early 20th Century Einsteinian notions.
A This is our current view.
Q Yes. It's -- now we are really -- now I go back to my MIT science days.
Force can be defined in terms of alterations of the fabric of space time?
MR. GARNICK: I want to interject an objection to form.
MR. ANGLAND: This may be one of the few places where a relevance objection would not be appropriate in the deposition.
MR. GARNICK: If you want to go down this line, go ahead.
MR. ANGLAND: I'm not going to waste anybody's time more than a question or two.
THE WITNESS: It certainly has the appearance of force. And if Newton were testifying, he would call it the force of gravity. It appears to be very spacial and unlike electromagnetic forces. It appears to have to do with curvature space time, so we would have fumbled if

page 86
page 87

we confused those concepts at that stage.
BY MR. ANGLAND:
Q Well, I think we will have to wait until this afternoon to see if either Lorenz, any of these transformations, or super string theory can wind up.
(Discussion off the record.)
BY MR. ANGLAND:
Q You have been a professor at various universities; correct?
A Yes.
Q Are you currently?
A No.
Q Were you a full professor at any university?
A Yes.
Q Which university?
A University of California at Davis.
Q When did you cease being a full professor there?
I'm sorry. I didn't mean to ask you, if we had the date right here in the document.
A Yeah, we have the date. I was just going to look it up.
Q That would have been 1989?
A '89 would be the last year. These are whole

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

page 87
page 88
number years. '89 or '90.
Q Okay. Now, you say you were consulting professor of law at Stanford University. What did you do there?
A Taught statistics.
Q For how long?
A For -- let's see. It was either two or three courses, each in a different year. But I wrote down when I stopped doing that and when I started, so just a moment. Oh, it's -- this should be updated. I'll get you a date to fill in on the first page of my vitae.
Q That would be an ending date for Stanford?
A Yes. I made that correction, and it didn't get in here.
Q Okay.
A So I'll supply a date. Because they hired somebody full-time. And I'm happy not to do that, so it's good to put an end to it.
Q Okay. And that was teaching statistics to law students; is that correct?
A Yes.
Q Was that -- you used the phrase "consulting professor." I'm not familiar with that phrase. Is that something like an adjunct professor?
page 88
page 89
A No, I wouldn't settle for that. We had a negotiation.
Q You had to negotiate the term.
A As you probably know, the common term would be "visiting professor." A common term for someone who's not a regular member of a faculty who's present and teaching would be a visiting professor. But there's a rule at Stanford, and the rule is you can't be a visiting professor unless you are at the same time a full-time professor somewhere else.
And so I couldn't be a visiting professor. And I wasn't willing to be -- I wasn't willing to come as an instructor or adjunct professor, because those are usually terms for people that aren't real professors, I would say.
So we just -- so we thought about it for a while, and I remembered the case of Sherlock Holmes, the consulting detective. He seemed to be a superior detective. So I said, "How about I become a consulting professor?" And everybody was happy because it didn't seem to set any precedents that they were aware of; hence, I became that.
Q Were you compensated in that capacity?
A Yes.
page 89
page 90
Q Back for a second to the surgeon general's report, 1989 report. Surgeon general reached a conclusion in that report that roughly 400,000 deaths a year in the United States were attributable to smoking. Do you recall that conclusion?
A Yes.
Q Did you come to any opinion as to whether the surgeon general was right on that?
A Yes, I have opinions about that.

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q What is your opinion?
A The opinion is going to come in a couple of pieces here. The first is that "attributable" is a term of art in this area and for this calculation. So if you understand "attributable" or "attributable deaths" to mean the term of art, which is to say the formula from, I think, 1959 -- could be '57, '59.

But there's a particular formula. If you apply that to relative risks that you find in their report, you get the numbers they get. So they don't make arithmetic errors. And it's not wrong to call that attributable deaths, because that's a term of art that means use this formula. And so, so far so good.

But the issue now arises, what's the meaning of these so-called attributable deaths. Does it mean

page 90
page 91

caused by? And the answer is certainly it doesn't mean that. And not just for the reason that I stated earlier about dealing with nonexperimental data, but for a more detailed reason, which is that there is serious and generally acknowledged confounding that's going on that would make it, I think, pretty generally -- well, I don't know, give me the opinion that you wouldn't want to say those are deaths from smoking. That would be a mistake.

I'll stop there.

Q Did the surgeon general address the issue of confounding in that report?

A At various places it's a report written by COMMIT, I say, and you can find different sections that don't always seem to be in good agreement. But I think they acknowledge in there somewhere that there's a confounding issue.

Q Do they indicate that they had considered confounding and concluded it didn't alter their results substantially?

A No, I don't recall that.

Q Okay.

A If there's something you have in mind, if you could show it to me, I could comment on it.

page 91
page 92

MR. ANGLAND: I think we need to pause to change the tape.

THE VIDEOGRAPHER: We are going off the record at 12:03 p.m. This is the end of Tape No. 1.

(Recess taken.)

THE VIDEOGRAPHER: We are back on the videotape record. The time is 12:O6 p.m. This is the beginning of Tape No. 2.

Counsel, please proceed.

BY MR. ANGLAND:

Q Dr. Wecker, can you identify any econometric text or treatises that you would think would be reliable sources of good econometric technique?

A Yes. Though one would have to consider the point that one might attempt to make from that book in an application with some care. You can't endorse a mechanical reading. Theil's books are good. Malinveau I like. Zellner's Bayesian book is good.

Q When you are doing -- strike.

I want to use the word, you know, to an

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

econometrician.
When one is doing an econometric study based upon observational data and you have a database sitting out there, how does one go about deciding what variables
page 92
page 93
to include on the right-hand side of the regression equation?
A There are different schools of thought on that.
Q First of all, tell me your school of thought.
A What I would try to avoid is we know there's a problem with admitted variables, so I'm coming at it the backwards way here. So I'm trying to avoid leaving out a variable; therefore, I'm searching for that variable which might be correlated with something that I'm interested in in the analyses, which would generally be some right-hand-sided variable I'm talking about.
So it's context-dependent. You really want to know what is it you are interested in and then start thinking about what are the relationships between that thing and other things.
Q How would the nature of the relationships affect your choice of variables?
A Well, if there's -- if something is related to the part that is interesting, I not only want it, I really need it.
Q Does the nature of that relationship affect whether you would want or need it in the equation?
A I'm not sure I understand that. I don't know what you mean by "the nature of" it. You mean like
page 93
page 94
strong versus weak?
Q The direction of causality, if there is causality, for example.
A No. There might be some special cases that somehow cure themselves, but the general case is not that way. Generally you omit the variables of the kind I'm discussing only with error.
Q So let's assume for a second we are trying -- we are doing a regression analyses to try to estimate the value -- I'm sorry.
Let's assume we have the independent variable, and we are trying to determine how it is determined by a number of dependent variables. I just misstated that. I said it exactly backwards.
One sets up a regression equation, and I'm trying to basically parallel what's going on in this case, where one begins with a dependent variable, but you are trying to explain it by a variety of other factors, okay?
A I'm with you.
Q Those are the independent variables; correct?
A Yes.
Q In that situation -- and let's say we are trying to focus on the role the particular independent
page 94
page 95
variable played, such as, in this case, smoking variables or others. In that case, is it your view that any variables that are themselves related in some way to smoking should be included on the right-hand side of that equation?

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

MR. GARNICK: Objection to form.
THE WITNESS: That's my starting point. The question is pretty abstract. So if we had a particular case, there might something special about it. But as a general rule, it's my view that you would both have to seriously consider and likely include in some way, not necessarily the way you said in your question, but include in some way, variables that are related to smoking.
BY MR. ANGLAND:
Q In what ways might one include a variable in that situation, other than simply giving it a coefficient and making it one more covariant?
MR. GARNICK: Objection to form.
THE WITNESS: There's a whole world of possibilities.
BY MR. ANGLAND:
Q Which ways come to mind?
A Once you leave the world of linear regression

page 95
page 96

to the world of nonlinear regression, it isn't like one thing versus another thing. The world of nonlinear regression is a wide-open field; it's there for you to invent new things and think of new possibilities.
But to be perhaps more helpful on the question, even though I thought it was a good preamble to note that distinction, there's -- simultaneous equation models are common, even though they might be linear. The idea of a simultaneous equation model comes up in issues of this kind. But nonlinear regressions of various kinds come up.
Q Are there any downsides when doing such an analyses to including additional variables in the right-hand side of the equation?
MR. GARNICK: Objection to form.
THE WITNESS: Let me first say that I'm going to understand your question to mean to include them in your analyses in some appropriate way, because I've already said that I wouldn't necessarily just add them on the right-hand side.
BY MR. ANGLAND:
Q Okay. Well, let me make the question more specific, then.
Are there possible downsides to simply adding

page 96
page 97

them onto the right-hand side?
MR. GARNICK: Objection to form.
THE WITNESS: I think basically not. But there are -- there were some popular toy examples years ago that people used to come up with to show how you could get a better estimate leaving something out rather than putting it in or adding a constraint.
But I don't really take those seriously. I think they attack a straw man in those toy examples. That basically including appropriately is the key, if you include in some dumb way or mechanical way, you might make your estimates worse, yes. But I think if you were more sensible, you are not going to make things worse.
BY MR. ANGLAND:
Q Now, I asked you a while ago about

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

observational data and analyses you had done of observational data. Let me switch focus that have -- a bit.

Have you seen published articles, either in your capacity as a referee or just reading journals that are out there, that have done regression analyses on observational data?

A I'm sure I have. I can't think of one right

page 97

page 98

now, if you want me to name them, but you see them in applied journals.

Q And as you sit here now, you can't think of any?

A No, I can't think of a particular example. But in applied journals like -- well, that move somewhat away from methodology, you see linear regression from time to time. But more commonly it's some more advanced type of regression because that's the sort of thing that gets published.

Q Was the article regarding the COMMIT study based upon observational data?

A There I think I'd say they had an experiment going. They definitely had an intervention. It starts -- it moves into the category of experiments, I think.

Q Was that a well-done study?

A I don't know it that well, but it's -- I found it interesting and believable.

Q Well, you cite it in one of your reports, don't you?

A Yes, I do.

Q Did it rise to the level of being well enough done that you felt you could rely upon it for purposes

page 98

page 99

of your report?

A Yes. Yes.

Q So --

A I thought -- I haven't studied it in the same way I've studied Harrison is what I meant. I haven't delved into a lot of the details; I just read the results.

Q In that case, you didn't go back and examine their code, I take it?

A That's right.

Q You confined yourself to what was apparent upon the face of the article itself?

A Yes.

Q But in terms of what you saw on the face of the article, given that you cited it, I take it you didn't find anything terribly objectionable about it?

A Not as a whole. I'm sure if we had it in front of us, there would be some aspects that I might have to comment on. But the basic result of the intervention and what they found I've thought was interesting.

Q In a cross-sectional study, what, if any -- what, if anything, does -- strike that.

In a cross-sectional study, does a low R-squared suggest that the study is unreliable?

page 99

page 100

A Not by itself, no.

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Under what, if any, circumstances would it suggest that the study is unreliable?
A By itself I'm not sure how to understand that question. Could you ask it --
Q Okay. We will get to it in the context of your report in this case, and then we will have a specific context.
In observational studies, is it common for there to be --
A I'm sorry. Can I add something to that?
Q Sure.
A I think when you were asking about low R-squares and relationship to whether the study that has that might be reliable or not, it got me to thinking about it.
I think you would have to say, reliable for what purpose.
Q That's fair.
A I think to really get thoughtful about that. Okay. We can continue.
Q It doesn't matter, since I don't get to testify, but I agree with your observation.
In databases used for studies based on
page 100
page 101
observational data there are often missing data; is that correct?
A Yes.
Q What should one do when one is faced with missing data?
A Call Don Rubin.
Q More particularly?
A It's a challenging area of statistical practice. I think Rubin has the best basic idea there and which is -- and I defer to him if I don't say things the way he would, I would trust, because he's the expert in this area.
But basically I take his idea to be, stick with the likelihood principle and just model the data you have, and try to write down the likelihood that's appropriate to your particular missing data structure. That makes good sense to me.
And I thought a lot of his earlier work on that was just more than an advance. He's absolutely the first person who really had a scientific grasp on how to deal with the problem of missing data, the first one.
But there's difficulty in practice, even though you have Don Rubin at your side. Exactly how you do that in a particular case is problematic, and I think
page 101
page 102
you have to approach it one at a time.
Q Okay. Now, when you talk about Don Rubin's approaches, can I use the -- are you referring to what is sometimes subsumed under the rubric multiple imputation?
A I would put it the other way around. I think multiple imputations flows from his original observation, but how you can use likely methods to deal with these questions, and then he's developed various imputation schemes.
And multiple imputation is one that he and, I think, Rod Little have written books about. I'm not an

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

expert -- I'm an expert at a distance on that subject. I don't make it my life the way they do.

Q Okay. Have you used a multiple imputation in any of your work?

A No, I don't think I've ever used it.

Q Have you dealt with missing data problems in any of your work?

A You mean leaving aside the situation -- I'll answer it in two pieces if you want.

There's some missing data issues in the present matter that brings us here today. And I have seen examples of missing data in other context, but I have

page 102

page 103

not used multiple imputation.

Q Just to be clear, I realize that to the extent Dr. Harrison did a regression analyses and he ran into missing data, then it's an issue before you in terms of your judging what he did about it. I'm putting that to a side and instead --

A I was trying to do the same.

Q And I think we are trying to do the same thing.

Focusing upon situations where you, or you and your staff collectively, if that was the case, were trying to do computations of your own and ran into missing data, have you in that context used multiple imputation?

A I have not. I don't know -- I don't get involved in everything that my company does. I might only be involved less than half of it. So I'm not speaking for everything we have done. But as far as my observations, I don't think I've ever used it.

Q And why not?

A Well, it's hard. And usually I can find a way to reduce the issues by -- as a practical matter by various bounding schemes or something to try to deal with them in a particular context, whereas multiple imputation is sort of a general purpose thing.

page 103

page 104

Q And in those situations where you did imputation, but not multiple imputation --

A I didn't say I did imputation.

Q I'm sorry. You said, "bounding schemes."

In -- when you talk about doing a bounding scheme, are you talking about -- I'm not going to guess. There are too many permutations. What do you mean by "bounding schemes"?

A It would be important to have a particular problem in front of you, but it might be that in that problem, that's -- just to make it simple, one number that's missing; and it matters, so you can't just ignore it.

And -- but everybody can agree that the biggest it could ever be is this, and the smallest it could ever be is that. And so you might do the analyses in more than -- in more than one way, making various assumptions about the things that are missing to see what effect it has.

That's sort of the -- that's an ad hoc sensitivity analyses that I've done sometimes, although if you asked me to remember exactly when, I probably won't remember it.

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Have you encountered missing binary data, such
page 104
page 105
as whether it was a male or a female that was responding, or things of that sort?
A I'm sure -- I'm sure I have, but I don't catalog all those examples in my head.
Q And by picking binary, I was trying to pick something where there isn't much of a range, where you just have two options.
In that situation, have you imputed data?
A I don't ever recall doing imputation in the traditional use of that word, like the hot deck imputations or various schemes that are around for doing imputations. I don't do that much applied work ever, I guess. I do now in the consulting world, but the -- when I have a particular problem, I usually address it in the context of that problem and try to figure out something to do based on that problem in that context.
Let me give you an example. There's essentially a missing data problem that I wrote an article on wherein instead of using something standard, I figured out what I thought might be a better way.
Q Is that the lead article?
A Yes.
Q Okay. I am familiar with that.
A So usually figure -- just try to figure it out
page 105
page 106
and figure out what's the sensible thing in a particular problem.
Q What's -- the example I gave, which admittedly is general, but let's assume you are trying to do a study based upon observational data, and you have got a bunch of data regarding each of a couple of thousand people, but you wind up missing certain binary information, such as whether the person is male or female or married or not married.
In that situation, would you simply discard all data regarding the person for whom you had those missing -- those two particular data missing?
A No, that's error-prone approach.
Q Okay. Would you simply assume that all the people were either male or female?
A As a sensitivity thing, you might do that, but you are not at the end of the trail here because you don't know exactly what that means.
Can I --
Q Sure.
A -- add a little?
Usually you can narrow this down -- let me say this: I don't think it's possible to say -- at least I can't say what you do at this level of abstraction. You
page 106
page 107
have to say what is the analyses, what is the data, what is the issue, what is the effect I'm trying to estimate, what is my point or purpose in all this.
And once you have figured that out, you have narrowed things down considerably as opposed to having some general purpose thing that's going to be a cure-all. Figure out what it is that you are interested in and what you think you have achieved, and then you

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

start to worry whether it's -- you have introduced error because of the problem of some missing data here.

And in a real example, various things are going to suggest themselves to a practicing statistician that's been at this for 20 or 30 years that might be just suggested by that context. Might be something you never do again.

Q Okay. Let's keep -- let's focus upon the NMES database in particular. Let's assume that there is some field in that database that reflects the number of cigarettes smoked or categories of smoking, such as, you know, 3 a day, or 4 to 10 a day, or 10 to 30 a day, or more than 30, some category like that, but that for a number of people there is simply a blank there.

In that situation, would it be reasonable for Dr. Harrison or anyone else to look at the answers he

page 107

page 108

had gotten from the other people, that is people from whom data were not blank, to see which was the most common answer from those people? And let's say it was what they -- let's call it 10 to 30 a day.

A You are inventing the hot deck procedure here.

Q And then filling in the blank, if you will, for all the other people by using whatever the most common answer from the people who did have answers.

A I would defer to Don Rubin on this, but I think he would tell us that that's not a good procedure. But I really would -- this question is so variable in his area, that I would defer to whatever he would have to say on that.

Q Okay.

A If he says that's a good procedure, I would be surprised. And he would have to explain it to me, because I don't think it's -- I think it's an old-fashioned procedure.

Q I wouldn't pretend to know exactly what Dr. Rubin would recommend, but since I didn't do anything multiply in there, I have a suspicion that he would have some reservations about it.

MR. DUNNE: It's 12:30.

MR. ANGLAND: Let's go about five minutes, and then

page 108

page 109

we will break.

THE WITNESS: Yeah. I'm comfortable to keeping going.

BY MR. ANGLAND:

Q Do you recall any imputations that Dr. Harrison made regarding smoking status for -- when doing the study?

A That he made as opposed to used?

Q That's correct. I'm distinguishing Dr. -- I'm sorry. I think I said, "Harris." I think I meant to say, "Harrison."

I'm not talking about the NMES imputations that he used, but rather imputations that Dr. Harrison personally made.

Do you recall his doing any regarding smoking status of the respondents?

A Well, my best way to answer that is to get refreshed. He may have, but my mind's not clicking over right now. I would just take a look at his report and

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

see if he did or not.
Q That's fine. At a break if you wish. I'll just --
MR. GARNICK: Do you have a page you can direct him to?
page 109
page 110
MR. ANGLAND: I probably do, but not in my memory.
THE WITNESS: Okay. Well, I can work on that during the break.
BY MR. ANGLAND:
Q And I think this will be our breaking point, at least our lunch point.
Did you --
A Oh, yes, I remember him talking about that.
Q Let's go back.
A It's coming back. I believe he made some alternative assumptions, not in the spirit of Rubin, but -- and then argued that maybe the missing smoking status wasn't too important. I recall him doing something like that.
Q Now, I don't recall in your report seeing any criticism of that particular imputation.
Let me just ask you, then, did you find any problem with Dr. Harrison's imputation of smoking status?
A I haven't made a point of it. I -- first, I'm remembering it only partially, so my answer may not be the same answer I would give after I read the paragraphs. But my recollection is that it looked like not a strong part of his analyses. But I didn't try to
page 110
page 111
comment on every little thing that I might have raised a criticism about. I tried to stick with the really big things.
Q Did you believe that his method of imputation led to a bias in his results?
A As I recall, he really didn't impute. He reran his analyses sort of in the spirit of what I was suggesting before; now that I've done it one way, let me do it this other way. But I'll reread that section during the break.
If he did imputations in his final result, or even if he didn't, if he ran them by excluding them or whatever or setting everybody to be a nonsmoker or what, that's bound to affect his results, of course.
But it's -- I didn't think it was a big enough point in terms of its effect to -- and perhaps I didn't think I had a good enough criticism, because it's a very difficult area. I may have been too timid and not really launched into that, because it's not an area that I do full-time. So I expounded on where I thought the bigger issues were.
Q Do you have any view regarding the reasonableness of the imputations done in the NMES study itself?
page 111
page 112
A That's really the same. I haven't tried to criticize them. I'm a little bit suspicious of any imputation. Missing data is a problem no matter what you do. But I haven't tried to join strongly on those

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

issues.
MR. ANGLAND: Okay. Let's break for lunch before all the vegetables wilt.
THE VIDEOGRAPHER: Going off the videotape record at 12:34 p.m.
(Lunch recess was taken at 12:34 p.m.)

page 112
page 113

AFTERNOON SESSION 1:29 P.M.
THE VIDEOGRAPHER: We are back on the videotape record. The time is 1:29 p.m.
EXAMINATION (Resumed)
BY MR. ANGLAND:
Q Dr. Wecker, let's speak for a few minutes about statistical significance.
A May I inject something?
Q Sure.
A Because during the break I did something that I want to report on before I forget it.
Q Please do.
A You had asked me earlier about any other variable that we might have used as a sensitivity or an alternative in Harrison's work. And so I called my office -- I didn't remember one, but I said, "Anybody there know of any?" And they said there was one.
Somebody -- it wasn't my idea, somebody had the idea to use eyeglasses, and so they -- because I take it it was their thinking that that would be something that would not be related to smoking. But that's the only one that was an alternative.
Q Do you know how the results turned out?
A Yeah. They told me that it didn't make any

page 113
page 114

difference.
Q Okay.
A Which is what you would expect.
Q All right. Let's turn for a moment to statistical significance.
Assume somebody has an equation, not necessarily Dr. Harrison's, but an equation which tries to explain medical costs in terms of a bunch of different variables, one of which is, say, smoking, same basic type of model Dr. Harrison has.
You do your regression analysis, and you get a coefficient for the variable in question, say smoking, that turns out to be positive, suggesting that this factor is associated with higher numbers of the dependent variable, in this case medical expenses.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Okay?
A Yes.
Q Let's assume you then do a statistical significance test on the coefficient at the 95 percent level and that the coefficient does not turn out to be statistically significant at that level.
Are you with me so far?
A Yes.
Q What, if anything, does that imply about
page 114
page 115
whether that variable, in fact, has a positive impact upon the dependent variable, which in this case is total expenditures?
A Well, it's an indication that -- let's assume there's no other problems, because this could get really complicated, but everything else is perfect and this is the only thing we are talking about.
So in that case it's easier to talk about. And it would give you an indication that there might not be such an effect, and it could be that the zero is a plausible value for that coefficient.
Q Does it indicate that there is probably not an effect?
MR. GARNICK: Objection to form.
BY MR. ANGLAND:
Q And by "probably," I mean greater than 50 percent likelihood?
A No, that's not the correct interpretation. But it is an indication of the kind. It just is not a probability statement.
Q Okay. So the fact -- if I understood you correctly, the fact that a coefficient for a variable in a regression analysis is not statistically significant at the 95 percent level does not refute the hypothesis
page 115
page 116
that the variable is probably a cause of increases in -- let me phrase it this way: It doesn't refute the hypothesis that the variable has a positive impact on the dependent variable?
MR. GARNICK: Objection to form.
THE WITNESS: I think the -- without resorting to an overly technical description of this, I think it is true to say that when you have a variable that is not statistically significant by these standards that you have mentioned in your question, that it raises concerns that the effect might be entirely spurious, but it doesn't put a probability statement on it. It raises reasonable concerns, and serious-minded analysts have for decades or longer had that view.
So it's not just my view.
BY MR. ANGLAND:
Q Okay. Now, is there anything improper about using a statistical significance test, a 90 percent test as opposed to a 95 percent test?
MR. GARNICK: Objection to form.
THE WITNESS: I wouldn't use the word "improper," as was in your question, but I think that the 95 percent convention is so widespread and, for good practical scientific reasons, that moving to some other
page 116
page 117

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

convention, to me, is sometimes a suspicious move.
I'm not suggesting that anybody in this case has done that, but when I see that, especially as a sort of looks like a device to create statistical significance when there would not be with the 95 percent, followed by the argument that maybe this is all arbitrary, I am not persuaded by that. I say no, the signs here are the same, whether you move to a 90 percent or not.
BY MR. ANGLAND:
Q What factors should be taken into account in deciding what level of significance to test for?
A As a general matter, I think that the factor that I would recommend is just adopt always the conventional standard and report it.
Q In some cases, significance levels greater than 95 percent are used in the literature; isn't that right?
A Sometimes. But usually they are -- 95 percent is present also, and someone wanted to make a more elaborate statement of the results.
Q Does the choice of significance level -- strike that.
Should the choice of significance level depend at all upon the purpose for which the study is

page 117

page 118

undertaken?
MR. GARNICK: Objection to form.
THE WITNESS: In the abstract I see -- I would say no, but you might -- if we had some real situation in front of us where there's some context, maybe I could see my way to change my answer on that. But my view is always use 95 percent, always report a P value, do it the same way every time.
BY MR. ANGLAND:
Q Now, in performing the test of statistical significance on a coefficient that you derive in a regression analysis, such as the analysis that I hypothesize, somebody is trying to figure out the determinants of medical expenditures, should one use a one-tailed or a two-tailed test?
MR. GARNICK: Objection to form.
THE WITNESS: In my practice, I would generally always use a two-tailed test, unless there was some strong contextual reason why you didn't want to do it that way. Because I think that there's nothing lost in that process.
Somebody could always convert to a one-tailed test if they wanted to, if you report the P values as well, which is -- as I've indicated, is the sensible

page 118

page 119

thing to do.
So I wouldn't call a person who did it differently than me improper necessarily, but my advice is to always do it the same way, 95 percent, two-tailed test.
BY MR. ANGLAND:
Q Are there -- can you identify a class of cases where one-tailed tests are appropriate?
A Well, the usual thing you read in the textbook on that is where you know as a fact you can rule out a hypothesis. Let's say you are testing against zero, you

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Digitized by http://www.industrydocuments.ucsf.edu/docs/ttgd0001

can rule out that this effect could ever be negative.
So now you don't -- you convince yourself that a one-tailed test is more sensible. This is the sort of the Statistics 101 suggestion for how to deal with that.
But in my 30 years of experience at this, by now I don't really see that as that great of advice. I think you are probably just fine to -- there's usually some debate about whether the thing could be negative or not. And just because you thought it couldn't, somebody else might think it could be, so just report the two-tailed test and do it the same way every time, seems like a good, practical prescription.
Q Now, let's shift to statistical significance

page 119

page 120

not of a regression coefficient, but of, in the context of this case, the SAF, the smoking attributable fraction, that Dr. Harrison computes.
Now, do you recall how Dr. Harrison assesses the statistical significance of the various SAFs that he computes?
A If we are thinking right, he uses a bootstrap.
Q Is that an objection to methodology?
MR. GARNICK: Objection to form.
THE WITNESS: It's not as well grounded in mathematics as the significance test. At least you know when you have done a significance test that there's a theorem there, that you can read the original papers, you know what you are doing.
That may not ease the burden on interpreting it in a practical world, but from the mathematical point of view, you sure know what you did. And it's less true with the bootstrap. You can do bootstrap standard errors, say, which are at the bottom of this calculation, and they can be quite misleading in some context.
BY MR. ANGLAND:
Q Is the bootstrap approach a generally accepted approach in the world of econometrics?

page 120

page 121

A I don't think it's that -- I don't think I could put it at that level. I think anytime anybody's doing a bootstrap, generally people want to look pretty closely exactly how he did it, because there's not just a single way to do it.
Q I'm not -- just to be clear, I'm not asking if it's possible to make a mistake doing a bootstrap.
A That's not what I meant.
Q Okay. You mentioned there are different ways to do it, okay? But acknowledging that there are different ways to do it, is bootstrapping an appropriate technique for an econometrician to use to determine statistical significance?
A I don't think you can answer that in the abstract. It may well be in some situations.
Q Okay.
A And even in those situations, you would want to be careful about the implementation.
Q Is bootstrapping a technique that appears in standard econometric textbooks?
A Maybe more so nowadays, but it's not that -- it's not as common -- it's a newer idea. It's -- Brad

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Effron is the -- I believe is the guy that thought it up. And it's been developed in recent years. So you

might see it in some books and not others. It wouldn't be in Malinveau, for instance. It wouldn't be in Malinveau because they are older books.

Q Let's assume the following: Let's assume that a regression analysis was done that met all of your specifications, and you were quite content it was a world-class effort. And it was designed to determine a smoking attributable fraction, and that was the purpose of the exercise.

A One equation?

Q I'm not specifying at this point whether it's a probit or tobit model or whether it's one equation, but whichever way you think regression analysis might be used or that you would consider acceptable, even if it's not the way you would do it.

So you've got an equation there, and the bottom line of this set of equations is that whoever's performed the study has concluded -- has come up with a point estimate of 4 percent for his SAF; okay?

This is hypothetical. I'm making the numbers up, so don't feel I'm getting you to agree that --

A No. I'm just listening intently.

Q Okay. But let's conclude that he finds that there's a 95 percent competence integral that runs from

minus 1 percent to plus 9 percent.

So do you have that hypothetical?

A Yes.

Q Okay. And we -- okay.

In that situation, if you were simply asked the question, can you make a reasonable estimate of what the SAF is, what would your answer be?

MR. GARNICK: Objection to form.

THE WITNESS: Well, my answer would be to define "reasonable." But if you -- if we can put that aside, because we will never get around to getting past it, I would agree that the 4 percent, I think you told me it was, that's an estimate.

Nothing about it that you would say is not an estimate just because its competence integrals enclose zero. But because its competence limits enclose zero, it raises a flag that maybe it's spurious and maybe zero is the truth here.

BY MR. ANGLAND:

Q Now, in the example that I gave, what is the most likely value -- given that data, what is the most likely true value of the SAF? By "most likely," because I realize that term can be used in slightly different ways, I'm looking at the modal value.

A Yeah.

Q M-o-d-a-l.

A Yeah. But there's a subtlety here. We don't know what the form of the distribution is on the SAF. So we don't know that the expected value that he's reporting out is a mode.

So I think that -- if I can add to your

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

hypothetical --
Q It's not more or less attributed?
A No, I'm not, because it's probably not.
Q What distribution would you assume?
A I'm not. I would try to figure it out.
Q Let's say the bootstrap revealed something very close to a normal distribution.
A Well, if I can assume -- even though I may be wrong, but just plunge ahead that it would be norm, then the point estimate -- the expected value would be the same as the modal value.
Q And they would both be the point estimate?
A Well, approximately, because you don't have even -- you don't really have those -- you picked a hard case with the SAF. If you had picked something else, these questions would be easier.
So I'm assuming everything is done according to

page 124

page 125

best practice, and I have no objections about omitted variables or any of those other things which make -- that are serious and have to be dealt with.
And I will add that I assume the distribution of this quantity is normal, and the replications are so many that we have gotten past the sampling error problem from this bootstrap, all of those qualifications not being met in the Harrison study.
But to add to the hypothetical, then you would have the point estimate, the expectation, it would be the average of the bootstrap values would be modal also.
Q Which would be 4 percent in that hypothetical?
A Yes, as we have elaborated.
Q Okay. Now, in this case, you have reviewed --
A Let me think for a minute.
Q Sure.
A Be helpful if you could also be a Bayesian, but perhaps the hypothetical needs to be elaborated just a little bit more. But I'll say there is an elaboration that I would agree with you, or I would say what I just said.
Q What is that elaboration?
A Well, seems like we are trying to get what's called oppose exterior distribution here. And for that

page 125

page 126

you need to adopt a Bayesian point of reference. Maybe that's not where you are going, but that's what it sounded like.
Q What sort of prior distributions would you be assuming in -- I assume in this Bayesian analysis, you have some sort of prior distribution?
A You would have to do that. And I'm assuming they would be what your hypothetical did, some sort of practice I didn't quarrel with.
Q Now, in this case, you reviewed attempts to compute SAFs by Drs. Harrison and Max; is that correct?
A Yes.
Q Okay. Have you -- you have in the context of other litigations reviewed attempts to compute SAFs by other experts; is that also correct?
A Yes. But I'm not going to be very good at remembering those details.
Q Okay. Have you reviewed some attempts by

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Vincent Miller?
A I remember his name, but I don't remember much of the details of that work.
Q By Len Miller?
A Same.
Q And just to be clear, when you say the same, is

page 126

page 127

it that you recall having reviewed their attempts, but you don't recall the details of their study?
A Exactly. I've looked at work by those two Millers, who are separate, they just happen to have the same last name, and but did separate work. It's been some time.
Q I have no intention of quizzing you on the details of what they did.
A Okay.
Q Have you reviewed an attempt to compute a SAF by Professor Newhouse?
A Don't remember that one. It's possible, but --
Q Professor Zeger?
A I remember looking at his work in Minnesota, but I don't remember one way or the other if he had a SAF. I believe in that work there was like a multiauthored situation, so I maybe can't separate those out. But I did look at his work at Minnesota.
Q Have you reviewed any other attempts to compute SAFs?
A Those are all -- I think you have named all the names that I remember.
Q Okay. Now, do you know if all these individuals are or have been professors at universities

page 127

page 128

in the United States?
A I would have to look up there vitae.
Q Have you been able to ascertain from one form or another whether they all have had training in econometrics?
A I don't recall. I would have to get out their vitae. You are talking about people not in this case.
Q That's right. I'm talking about --
A I know about the ones in this case.
Q Fair enough.
A But the other ones, I would have to review that.
Q Okay. All of the studies -- all the people that we have talked about whose studies you have reviewed, including the two in this case, have concluded that there was a positive SAF; is that correct?
A I think so, although I can't -- it just seems like it must be so, since that's the point that they are -- they were probably advancing.
Q Have you found any of these studies to be reliable?
A Oh, there were some aspects of what I reviewed that I thought were good and some aspects that I thought deserved some criticism.

page 128

page 129

Q In any particular study -- was there any particular study, though, where you believe that the conclusion regarding the level of the SAF is reliable,

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

that is that it's a reliable estimate of the SAF?
MR. GARNICK: Objection to form.
THE WITNESS: I'm just not able to recall well enough. There might be something -- I know there were aspects of what these different individuals did. Did you mention Dr. Samet? Because I reviewed his stuff too, just to add him into the mix.
BY MR. ANGLAND:
Q Did he do a study of the SAF?
A I don't know how to separate out the work, but I remember he testified in conjunction with others that were -- where the SAFs were involved there somewhere. Whether he put them forward individually or exactly what, I would have to review that.
But there were a number of things that I agreed with and some that I thought was proper to point out error.
Q You say there were a number of things you have agreed with. But I suppose it could be true that if there are a hundred studies and you agreed with certain aspects of all hundred, but disagreed with certain
page 129
page 130
aspects of all hundred, that you at the end might not have any study that you thought was reliable? I mean, that's a possibility; right?
A That's a hypothetical beyond what I --
Q Right. That's what I'm trying to get at here.
Is there any study you have ever reviewed that attempted to compute the SAF, the smoking attributable fraction, that you concluded was even -- if not perfect was pretty reliable?
A Not in every aspect, no. There would be some aspects that I thought were better and some aspects where I thought I should point out the weakness.
Q Again, I'm not asking you whether there were any -- whether there was some criticism. Let me just give you an example.
A I keep thinking I'm responsive.
Q It could be my question as well as your answer, so don't take it personally if I stick on the question.
A Okay.
Q For example, let's assume that you saw an incredibly brilliant study that was just about perfect to you, but you noticed one little error in it, and if you adjusted the error, the SAF would fall from 5.1 percent to 5.098 percent.
page 130
page 131
A Mm-hmm.
Q In that case, I think it would probably be fair for you to say, I found something to criticize in the study, but I thought it gave -- it was a reliable estimate of the SAF.
Would you agree with my hypothetical?
A Okay. I would say that in that case.
Q That's what I'm trying to get at here.
When you say you found some things that were good and some things that were bad in various studies, what I'm trying to ascertain is whether there was any study that had sufficiently little bad about it that in the end your conclusion was that it was a reasonable estimate of the SAF?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

A See, when you say, "the SAF," these studies are much more complicated and they probably had numerous SAFs in them. And although I don't remember the details, maybe some of them I thought were reasonable and others I thought were not, and I had reasons to point out.

So I know that in every instance where I've commented, I thought my comments were important enough to call to the attention of the court. So they weren't the little bitty comments; they were important enough I

page 131

page 132

thought it was worth the court's time to understand these points.

But they didn't kill every aspect of this -- of the person's work, because I would also say, now this statement I would agree with.

So maybe you think I'm not responsive, but I'm trying to be.

Q Are there things about Dr. Harrison's work in this case that you put in that category where you say this portion of what he does I agree with?

A Yes, I think you can do things like that.

Q And give me some examples, just so I can better understand what you are saying.

A Well, it isn't going to be as sharp as I would like to make it, but here's one that comes to mind because it's an important one: Harrison makes estimates for smoking-related diseases; I think he calls them disease-specific estimates. I'm using a slightly different term, but I mean the same thing.

And he controls for confounding. I may say that his controlling should be a little different or so on, but basically his idea of limiting attention to what I and the surgeon general call smoking-related diseases and controlling confounding is a good idea; it's what I

page 132

page 133

would recommend. So that's a plus.

I think his work where he works with the nonsmoking-related diseases is almost doomed from the outset; it's just too hard a problem. He's bound to get spurious relationships there. That's not a proof. You have to go in and show what the problems are.

But I would set that on the opposite side of the ledger as not a particularly good idea, probably not going to get very good estimates, probably not very reliable. But the first one, good start, that's the way I think it should go.

Q Based on all the work you have done regarding studies that have attempted to compute smoking attributable fractions, have you reached any conclusion as to whether any smoking attributable fractions are, in fact, positive?

A Not definitively. But I have smoking attributable fractions of my own that I've calculated here that I think properly improve the methodology that was put forward by Dr. Harrison by adding some variables I think should be added and changing some things I thought were erroneous. And I got positive numbers.

Q And based upon that, is it your conclusion that the SAF is a positive number somewhere between zero and

page 133

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

page 134
what Dr. Harrison concludes?
A No, I don't know that. It could be, but you have to set against that a couple of things. One is I'm working within his framework, Harrison framework, and I think it's not a good framework.
I pointed out some things that I thought were good about it, but there's a really important thing that's not good about it, and that is he's not doing a lifetime calculation. You can pursue that point if you want. It's not really the essence of what I've done with my criticisms.
But now you have -- now the questions are coming in a way that I need to bring that out. So is there really a positive SAF, probably not. Because I'm reasonably convinced, by what I've read by others, that others have done about lifetime calculations.
There's something else. Let me think. I've forgot it now. Maybe this was it. Just that even making what I think are clear improvements to Harrison, you still have to be suspicious when you are done that you have got something spurious because of the nonexperimental nature of the data, the omitted variables that you would like to have that you can't have. And so perfect it is not. And may well be zero,
page 134
page 135
may well not be anything -- any damage there at all.
Q And given all that, do you have a view regarding whether the SAF for all diseases, not just smoking-related diseases, is, in fact, positive?
A Well, from the point of view of the lifetime calculation, I would say probably not.
Q Let's put the lifetime aside for a second, and we will come back to that.
Focusing instead on what's sometimes referred to as the prevalence approach, which is what Dr. Harrison uses here, in that context, do you have a view regarding whether the SAF is positive?
A Well, I would say it's either positive, but not very large, such as 2 or 3 percent numbers that I see when I make small changes. Or if you consider that there are some additional variables you don't have and the likely effect is to continue to reduce it, it may be just negligibly different from zero.
Q You mentioned there are some variables you don't have that, if you included, the likely effect would be to produce the SAF.
Could you give me a couple examples of those variables.
A Oh, I would like to have what amounts to a
page 135
page 136
complete medical file on the individuals. My appetite for data is unbounded. Not just simple things like another NMES variable. If I were doing this, I would have -- I wouldn't use NMES if I had a lot of money and time.
I would be out interviewing individuals in the same fashion you are asking me questions and getting loads and loads of information and then sending them to medical doctors and looking at their complete medical history, all that.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/ttgd0001

Q What leads you to --
MR. GARNICK: Can we go off the record for a moment.
MR. ANGLAND: Yeah.
THE VIDEOGRAPHER: Going off the videotape record. The time is 2:00 p.m.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the videotape record. The time is 2:02 p.m.
BY MR. ANGLAND:
Q What leads you to conclude that if you had those additional data, that would result in decreasing rather than increasing the SAF?
A Two things. One is that as I have, both -- as Dr. Harrison's added, variables that would otherwise, if

page 136
page 137

omitted, be confounding in nature, as he has added those variables, the SAF has gone towards zero as -- that's a fact.

It's also a fact that, as I would expect and he would expect, I think others would expect, because they matter, then when I've added a few more that I thought he should have added, that were there that he didn't, every time I add one, the SAF goes towards zero.

I add the first one, it goes down a little bit; I add the next one, it goes down a little bit. I add eyeglasses, it doesn't go down, because eyeglasses aren't the kind of variable we are looking for. Looking for true confounders that would be related to smoking and to expenses.

Now, I think it's easy to suppose that if that process continued, the decline would continue.

Q In fact, many of the variables that Dr. Harrison, if you will, added to his equation, if you did the equation as starting simply relating smoking to expenses and then adding new variables to that, many of them wound up increasing the SAF, didn't they?
MR. McCARTER: Objection to form.
THE WITNESS: I haven't looked at that one at a time, but it's possible. I think age was one of them

page 137
page 138

you mentioned went that way. I'm not saying all variables you add could go that way, but the ones that I think all experts in this case would generally agree are concerns about confounding are the ones that would tend to make the smoking effects spuriously large.
BY MR. ANGLAND:
Q You talked about having a complete medical history. But can you point to a few what I would call NMES-type variables that are not considered because -- not NMES presumably, but that you think should be included and that obviously would lead to a higher than a lower SAF?
MR. McCARTER: Objection to form.
THE WITNESS: Maybe I should think about that over a break, because I hadn't thought about it, since it's not a practical possibility. I can't add variables that aren't there.
BY MR. ANGLAND:
Q Well, in your report --
A Let me jot it down, so I've got the full thrust.

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Jot it down, but then I'll continue on it.
A Additional variables that are like NMES variables, but not a NMES. So you would be looking for
page 138
page 139
things that would be correlated to health expenses and correlated with smoking. Does the person own a motorcycle, that would be an example.
Q On page 6 of Exhibit No. 1, you have a heading --
A Just one second here.
Q -- labeled, "Omitted variables."
A Okay. I have it.
Q Now, with respect to the -- you tick off a list of items there, I guess, as illustrative examples of omitted variables. Which ones in that list would you point to as obviously decreasing rather than increasing the SAF if you would include them in the analysis?
A I don't think any of this is obvious, but I think as a reasonable surmise at least.
Q That's fair.
A I would say toxic exposures is a real good one.
Q Anything else on this list that you believe would decrease rather than increase the SAF?
A Oh, decrease?
Q Decrease.
A I had it backwards.
Q Let me ask the whole question again in case anything in my asking or your answering was out of
page 139
page 140
kilter.
What I'm asking you is to take a look at these variables that you have mentioned that you might like to control for an analysis like this to see if you can point to ones where you believe that if you did include them in the analysis, the SAF is much more likely to go down than to go up.
A I see.
Now, let me assume also that there's -- that everything else about the analysis would be without flaw.
Q Right. We are talking about reality here, not just --
A No, that's not reality. Reality is there's a lot of flaws.
Q I'm sorry. I didn't mean to -- let me correct the misimpression.
I'm not asking you to assume that Dr. Harrison's study is perfect, but assume you have the ideal -- that you are doing the study.
A Right.
Q So what we are trying to get is, in reality does a factor -- which way would it affect the computation if you did everything right?
page 140
page 141
MR. McCARTER: Objection to form.
THE WITNESS: Okay. Well, let me see. Let me look.
Some of these don't have a natural direction, like family medical history, so I don't think you can answer without -- in any simple way for that.
BY MR. ANGLAND:

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q What about alcohol? Let's just go across.
A That's another complicated. So let's try to find an easy one. Poverty status, that's pretty well understood. It's better not to be poor when it comes to -- well, certainly when it comes to health. Connecting that up to Blue Cross expenses, that might be more complex.
Q So you don't know offhand which way that would likely go?
A No.
MR. McCARTER: Objection to form.
THE WITNESS: I think it's pretty well established how it goes on health. But it may not be so clear when it comes to -- I would have to think about it a little harder as to how that might go.
BY MR. ANGLAND:
Q And actually, let's just pause for a second on poverty status.

page 141

page 142

Is it clear how it affects even health after controlling for income separately?
A Well, poverty and income I had in mind as being -- one measure of poverty is low income, so I'm not sure what that means.
Q For example, in Dr. Harrison's model, he didn't control for poverty, he did control for income.
A He used income and family size. I think he did a little table, if I remember right.
Q Well, I don't -- his report obviously says what it says, but I think it controls for both income and the square of income.
And what I'm asking you is, do you have reason to believe that after controlling for both income and income squared, that it is well established that then controlling for poverty should decrease rather than increase the SAF?
MR. McCARTER: Objection to form.
THE WITNESS: Well, one could do better in a way that would change the SAF -- I just say "change" for the moment, without thinking about it -- which way, that it just used income and income squared, because that's income at a point in time.
You are, in fact, interested in these effects

page 142

page 143

from the -- 1954, I think, to 2009. There's a whole lot more you can know and might like to know about a family's poverty or not.
BY MR. ANGLAND:
Q And I'm assuming that you are right, that it would be better to have a poverty variable in there. And I'm just asking if you have a strong reason to believe that when you included it, the SAF would go down rather than up.
A The proof is doing it and seeing what happens, but I think it would go down.
Q Okay. Are there others on this list where -- that you can look at and say you are pretty confident -- and say that the SAF would go down if you control for them?
A Toxic exposures, depression, anxiety, stress. The others are not clearly categories, so I can't really

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

speak to those.
Q Let's start with toxic exposures. What leads you to believe that controlling for toxic exposures would have the SAF go down rather than up?
A Well, if you are an industrial worker in an area with industrial pollution of a kind that your doctor would tell you is bad for your health and might

page 143

page 144

lead to additional trips to the doctor, I'm going to suppose that that exposure might lead to a higher-than-otherwise medical expense.
I also believe from past experience that that is -- that kind of exposure is associated more so with smokers than with nonsmokers.
Q Is it associated more so with low-income people than high-income people?
A The tendency I believe would be for lower income, but it's not -- you know, some industrial workers make good wages. It's not a poverty thing. But I suppose there would be -- I suppose they would make less than you lawyers make.
Q Is it associated with whether one has a college degree?
A I would think it may.
Q Okay. If those factors are already controlled for in a regression analysis, then can you say at that point that even if your initial proposition was right, that there are more smokers in these high-risk areas than nonsmokers.
If in that situation we have already controlled for other variables that are correlated with that, can you then tell which way the SAF would go when you

page 144

page 145

further adjust it for this?
A Yes, I think so.
MR. McCARTER: Objection to form.
BY MR. ANGLAND:
Q How so?
A Because that's simply an inadequate controlling.
Q Okay. What about alcohol use? Do you have a view regarding whether controlling for alcohol use would increase or decrease the SAF?
A That's one of the more complicated variables. I think that alcohol abuse, really extreme alcohol abuse, would be essentially like I described a moment ago with toxic exposures. Zero alcohol use is associated with higher mortality than some alcohol use.
But exactly how that works through to medical expenses is then harder for me to see, because there's no direct connection between mortality and expense. But I think I could anticipate -- and I hope I haven't overclaimed on these questions.
I'm saying it's a reasonable surmise as to which way these things go, and that's what I might expect, but you don't know until you try it, because it may be that you overlook something.

page 145

page 146

But I would expect at least extreme alcohol abuse to be something that would tend to lower SAF, if

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

everything else was perfect. You have other problems in the model, and then it's not clear in the model because there could be interactions to the particular kinds with other areas of the model.

Q Do you have a view regarding whether moderate drinking increases or decreases one's medical expenses?

A I think it's associated with lower mortality. As to -- it's very complicated. That's why you need a statistical model to try to unravel it. Issues that you can't assume away are just predispositioned to go to a doctor.

You could be equally sick and some person might go to the doctor and another person might not. So it's -- I guess I'm reluctant to say for sure which way these things go.

Q Now, have you ever tried to develop a model to compute a SAF yourself?

A I have never been in the position, as I take the meaning of your question of, say, a Dr. Harrison, where I'm doing an affirmative SAF calculation.

Q That's right. I mean -- I appreciate that you have done adjustments to other people's models, all of

page 146

page 147

which you have got -- all of which models you have reservations about, as I understand it.

And so what I'm focusing on now is whether you have ever sat down, armed with all the knowledge you have picked up in this area over the years, and attempted to develop your own set of equations to compute a SAF.

A No, I've never been asked to do that. Never found myself in that situation, so I haven't.

Q Do you believe you are capable of generating a reliable model to address that issue?

A Well, I might be. I would have to think -- before I told someone I could do that, I would want to think real hard as to how I would go about it and what I could reasonably promise them I could achieve.

Q Let's just, to stay on them, jump for a moment to Dr. Harris rather than Harrison, where he attempts to compute conduct attributable fractions.

Have you ever developed your own model to commute conduct attributable fractions?

MR. McCARTER: Objection to form.

THE WITNESS: Not in the sense of being in the place of the plaintiff experts, Dr. Harrison, and affirmatively making that calculation, as I would if I

page 147

page 148

were in his position. But I have done variations and alternatives on work that others have done.

BY MR. ANGLAND:

Q And just so we are clear, I mean in theory a defendant's expert could do it too, could sit down and develop his own model and come up and show what a low number it is. So I'm not restricting you to work you -- the mere side of the caption you happen to be working in connection with isn't the issue.

The issue is whether you have developed your own model pretty much from scratch that you are willing to say, here's a reliable way of estimating the conduct attributable fraction. I take it you haven't?

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

MR. McCARTER: Objection to form.
THE WITNESS: That's right. In all cases I've received the work of others, been asked to review it, comment on it. I've sometimes done alternatives and variations, but I didn't start fresh; I started with the work of others.
BY MR. ANGLAND:
Q Do you believe that you could develop a reliable model for the conduct attributable fraction?
MR. McCARTER: Objection to form.
THE WITNESS: I don't know. It's hard and I would

page 148

page 149

think about it. But before answering yes to that, I would say if you were asking me to do it, I would have to say we are going to have to spend the next hour at least talking about what data are available and what assumptions are possible.

And maybe in an hour or a day I could answer your question whether I could reasonably do that or not. And even then I might not, but at least I could give you a good indication.

BY MR. ANGLAND:
Q Why might it be the case that you wouldn't be able to do it? I take it it's not because you lack statistical expertise or econometrics expertise; since I've seen your credentials, you obviously have that.

What would be the problem?

A Well, some problems, you can ask questions that I can't answer. That's easy. You can ask me a lot of questions that I don't know the answer to, and I don't mean questions about the meaning of life; I mean just practical questions. Some questions are very hard, and I wouldn't want to warrant that I could give you a good answer; other questions are easier.

Q And when you say, "I" in that case, are you talking about -- you are not talking about a particular

page 149

page 150

infirmity or difficulty you would have, you are saying this is a problem that might be sort of intractable from an econometric point of view?

MR. McCARTER: Objection to form.

THE WITNESS: Well, if not intractable, at least very difficult compared to less difficult. Some questions are really, really hard and others are not so hard; that's all I'm saying. Nothing really subtle here.

BY MR. ANGLAND:
Q As you sit here today, given the work you have done on conduct attributable fractions over the years, do you have an opinion regarding whether there is a reliable way to compute the conduct attributable fraction?

A I don't know that I have a "Yes" or "No" answer to that, but I have some -- I think I could indicate some things that would occur to me to do, if I were trying to do it, that I think would be necessary if you were to get anything reliable.

Q I will ask you about that in a second, but I just want to be clear.

The way my question was phrased, I think kind of -- I might have blown it, but I was trying to lend it

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 150
page 151
to a "Yes" or "No" answer.
A That's right. I didn't think I had a "Yes" or "No" for that.
Q Let's make sure we have the same question.
As you sit here today, do you know whether it is possible to develop a model that reliably estimates conduct attributable fractions?
MR. McCARTER: Objection to form.
THE WITNESS: Oh, I see. Do I know -- I would say I don't know for sure, because you would have to get into the details before you could start to develop a sense of whether it's doable or not.
BY MR. ANGLAND:
Q Is this something you have thought about over the years that you have worked on these models, on other people's models? That is, have you thought about whether it is possible to compute a conduct attributable fraction reliably?
A Yes. I don't always, and perhaps usually I don't think about it as a conduct attributable fraction, but some other mechanism that would have the same import, that you are trying to figure out what's the effect of conduct.
And I think I have insight, and I've certainly
page 151
page 152
thought about it a lot.
Q And despite that, your view -- you don't have a view today as to whether it's doable?
MR. McCARTER: Objection to form.
BY MR. ANGLAND:
Q And by "doable," I mean doable in a reliable way.
A Well, not without getting into the details. See, the lawyers in this area -- conduct, the lawyers get in the way. Or maybe I shouldn't say it that way. The lawyers are unavoidably involved. I shouldn't say they get in the way.
But you can't do conduct without lawyers because it's basically a legal thing. So now you and I are going to have to work together on this. And pretty soon -- I wish I had a hypothetical person here, but pretty soon I say I can't work with this person, he doesn't think the way I do, he's got ideas I don't agree with. This isn't going to work. You are going to have to get somebody else. That's what I mean whether I could do it or not.
Q Let's take this out of the legal context.
A I think you can't.
Q Well, let me try.
page 152
page 153
A Okay. I'm going to listen hard.
Q Let me assume that the issue that was posed is simply the following: What percentage of any excess cost due to smoking would have been eliminated if the tobacco companies had acted differently in certain enumerated respects, with those respects being things such as not having made certain statements that they did make and having made certain statements recognizing adverse consequences of tobacco smoking that they didn't

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

make.
Let's just leave it at that. No lawyers involved, it's simply that's the question that's been presented to you. And let's say the idea was to develop a publishable study that reliably computed the answer to that question.
Given all the work that you have done on that general area over the last several years, do you have a view regarding whether that is something that an expert could do?
MR. McCARTER: Objection to form.
THE WITNESS: Yes, I think likely that's something that is doable. You -- in your hypothetical, you suggested that we had spent the time to hear exactly which statements you are talking about and when, flushed
page 153
page 154
that all out.
So we are now down to the effect of information or publicity. And I believe there, there are difficulties that will arise, because you want to talk about the remote past and the remote future. And maybe those would become so difficult that you wish you hadn't gotten involved in it. But basically I think there is something useful that can be said about that kind of effect.
BY MR. ANGLAND:
Q How would you go about, in that sort of undertaking, quantifying the impact of the tobacco company's not having said certain things that in the real world they did say?
MR. McCARTER: Objection to form.
THE WITNESS: I'm thinking.
Well, the first answer is, my thought right now might not be the same thought I have tomorrow when I've had a chance to think about this some more. But I would want to start, I think, by interviewing some people who had heard these words that we are talking about and see if I can learn just from them telling me; not necessarily that they are telling me something reliable, but it would be the kind of place I like to start.
page 154
page 155
I recall a person that was studying the effect of street lighting on crime, anticipating the obvious result that more lights would be good for lowering crime rates. And he had a whole bunch of statistical analysis about this and some theories.
I said, "Well, did you talk to any criminals?"
He said, "No."
I said, "They are all locked up over in the jail over here. They are easy to access. Why don't you ask them what street lighting would do?"
So that's just my own personal approach to these problems. I like to get started with sort of a human context on it.
Now, where I would go from there is hard to anticipate because you look at the Stage 1. And then when you go to the next step, you benefit from what you started out on. I would look for any surveys that had been done. So is there any existing relevant data.
I think Viscusi had some. I don't remember them very well, but he did some surveys. If you ask me

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

about them, I won't remember. So I would search for that kind of stuff.

And then I don't know what I would do after that. I would keep working. The COMMIT data would be

page 155

page 156

good. Intervention studies like that would be good. So there you have -- it's not the same, but it would be interesting to explore and see if there were any lessons there.

BY MR. ANGLAND:

Q Why is it not the same?

A You are talking about somebody not saying something that they said, and the COMMIT study was sort of the other way around of that.

All of this is so abstract, I'm not sure what my answers mean because you didn't tell me what it is that -- what the statement was. When you really had the statement, you might veer in your thinking a little bit one way or the other.

Q Let's talk about propensity scoring for a few minutes.

A You have the wrong man on that.

Q That's the first question.

I take it you are not very familiar with propensity scoring?

A I'm familiar at a distance. I was just indicating you have an expert in this case who invented it, and so if you really want to learn about that, you have a good opportunity.

page 156

page 157

Q If I were to give you a very simple dataset now, could you compute the propensity scores for me?

A I would want to look up -- I know generally about that, but I've never done it before. I would sure want to go and get the formulas right.

Q You are saying if you look at Dr. Rubin's paper or papers on the subject, you could apply them to a dataset?

A Yeah, I think so. I've read it before. I just don't have the formulas all in my head.

Q Okay. Have you ever in the -- have you ever actually been involved in a study where propensity scoring was used by the author of the study?

A I'm not sure -- I don't do studies. I write papers. And I think of a study as some kind of thing like where you go out and do surveys and analyze the results. I just don't do that kind of work and publish that.

Q Well, you mentioned, for example, you serve as a referee on journals, and you get student papers and things like that.

A I do that.

Q There are a variety of contexts in which it's at least conceivable that somebody -- well, let me back

page 157

page 158

up.

Other than the work you do in tobacco cases, do you ever see regression analyses done on observational data?

A Yes.

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Q Okay. Have you ever seen propensity scoring used on any of those?
A I've seen it come up, but I can't put my finger on where. It's not the first time I've heard the word. It's one of the ways that people use to -- the way I think of it maybe -- if Don Rubin says I don't think about it the right way, he's probably right.
But I think of it as just a distance measure between two clusters of data at high dimensions. And it's a particularly clever one. I remember reading at the time, I thought this is a good idea. Whereas other measures, I think Mahalanobis -- I'll spell that for you later -- and some other folks have distance measures that are sort of more ad hoc, and they don't appeal as much as the propensity score idea.
I see people doing that and -- in published articles, and I just don't know how to put my finger on which ones are which.
Q Now, Mahalanobis uses the inverse of variants;
page 158
page 159
is that right?
A In a multi -- he castigated down to a scaler because the inverse -- and he can't do it because the inverse of the matrix is going to be a scaler. I don't know. It's a trace of the inverse or something like that. I've forgotten what it is. But you have to get down to a scaler.
Q Now, with respect to propensity scoring, what, if any, relation does it have -- no, strike that. Let's approach it a different way.
What's a good propensity scoring -- if you have done a good regression analysis, what propensity score would you like to see?
A I don't know.
Q Would 50 be a good propensity score?
A I don't know what the scale is. I would have to review that. I don't know if it's even scaled in that fashion.
Q Okay. Now, you taught econometrics; correct?
A I've taught some courses, yeah.
Q Have you ever taught propensity scoring?
A No.
Q Was propensity scoring covered in any of the textbooks or treatises that you use for your
page 159
page 160
econometrics courses?
A I think it might be in Judge -- and the many authors, Judge Hill. I've forgotten who all the authors are. And I've used that. But it's been quite a few years since I was teaching that stuff, and propensity scores are a bit newer than that.
Q Propensity scores were around in the early 1980s, weren't they?
A Maybe his earlier work was, but it hadn't -- I don't think it was a popular thing as much so then as it is now.
Q Would you say it's popular now?
A I see it -- I don't think it's widespread, no. But I see it often enough. It's mainstream, I would say that.
Q You say you see it often enough. Where do you

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

see it?
A Well, I read several journals a month and I --
Q Now, just tell me the names of those journals. It might be the ones you mentioned earlier, but I want to be -- I realize you might read a journal that you don't subscribe to.
A Let me finish. You have been better than any questioner I've ever had at this, but you actually
page 160
page 161
didn't let me finish that one.
Q I apologize. Sometimes it's hard to tell.
A Several journals a month and other articles that come my way. So the journal reading might be half of what I do. And I know that I've run into propensity scores being mentioned from time to time when I do that.
You want me to list journals. It was the Journal of the American Statistical Association, the Annals of Math Stat, the Risk -- the journal from the Risk Analysis Society; I'm not sure what they call it. I think it's Journal of Risk Analysis. Technometrics. Journal of Business and Economic Statistics. Statistical Science, I didn't mention that one earlier, the orange one. There's a quasi-professional thing called Chance that I get.
Read Mathematical Intelligencer, sometimes has statistical articles. And then -- I read all those on a regular basis whenever they come out. And then I read other articles as they come to my attention or as I pursue them.
Q And just to be clear, when you have seen references to propensity scoring, have these been -- have some of these been in the context of studies on observational data that you will actually employ
page 161
page 162
propensity scoring as opposed to an article by Dr. Rubin urging people to use propensity scoring?
A Since I can't put my finger on specific articles, I would rather not strain my memory by that. I'll -- I know -- here's my view, without being able to back it up very well with actual articles.
You see people talking about propensity scores, and not just Don Rubin, from time to time. It's not something that's in half or a third or even 20 percent of the articles, but it comes up from time to time. That's the only point I was trying to make. It's an occasional part of the statistical landscape.
Q In published articles that reports of observational studies in the last five years, does it show up even 5 percent of the time?
A Oh, I --
MR. McCARTER: Objection to form.
THE WITNESS: It may not. But then statistics is like medicine. There's no one thing that shows up very much. What you could do is just go look at probably citations to -- go to the science citation index and look up citations to Rubin or Little.
I don't remember if Little is in that one or not, but certainly look up citations to Rubin and track
page 162
page 163
it down like that. 5 percent would be a pretty big

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

number for any one thing, because the world of statistics is just huge and varied.
BY MR. ANGLAND:
Q If somebody does regression analysis on observational data, do you consider it unsound practice for the person to fail to do propensity scoring?
A Not if they address the issues that propensity score is designed to address in some way that was convincing.
Q What are those ways?
A Well, I think there I harken back to an answer I gave at the beginning of the day. When you have a particular context, a real problem with real data, possibilities suggest themselves that just don't suggest themselves in the abstract because they are not of general applicability.
The propensity score idea is one of these general ideas. The issue, as I understand it, that this propensity scoring is trying to get at is the reliability of using the results of a regression from data in one portion of high dimensional space and making estimates about some other -- some data that were not part of the estimation set.
page 163
page 164
And everybody knows that if the estimation set and the prediction set are far enough apart from each other, it's a fool's game. You just have no information from one about the other. And if there's some overlap, you got a chance. And so there's the issue, where are we in this particular application.
And it might depend on what you are trying to predict, not just on the data. You might be able to show that you can get reliable predictions in one respect, but not in some other respect.
I myself have not used this propensity scoring, not because I think it's no good, but I usually find some particular way to deal with the problem that's more ad hoc.
Q In this particular case, you did not criticize Dr. Harrison for failure to use propensity scoring?
A No, that's correct, I have not.
Q Do you think it was a shortcoming of his analysis that he failed to use propensity scoring?
A I really haven't thought about it. I knew that we had Don Rubin in -- that was reviewing that material, and I thought I would just leave all that to him and I would not pay any attention to it.
Q Well, you undertook to identify major
page 164
page 165
shortcomings, if any, in Dr. Harrison's study; correct?
A Well, you may have hit upon an exception. If there's a major shortcoming in this propensity score area, I did not undertake that one. I left that to someone who knows much more about it than I do.
Q Do you know if it was an error of Dr. Harrison to not use propensity scoring?
A I have no opinion on that.
Q Okay. Do you have a view regarding whether propensity scoring is now in the mainstream of econometrics thought?
A I like the phrase I used earlier, that it's

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

definitely a part of the statistical landscape used nowadays. If that's not a satisfactory answer, maybe you should make me answer it again.

Q Let's try something else.

Propensity scoring is not addressed in most of even the modern econometrics textbooks, is it?

MR. McCARTER: Objection to form.

THE WITNESS: Probably not, but that is a real shortcoming of long standing in econometric textbooks. Econometric textbooks are really deficient in this area. So whether they get into propensity scoring or not is more significant of the fact they are pretty weak on

page 165

page 166

model evaluation specification issues period.

BY MR. ANGLAND:

Q If we move away from textbooks into treatises, are you --

A I don't know what a treatise is.

Q I think of a treatise as designed for a student, and there may not be a reference, not used for a class.

A A book.

Q A book or series of books. An econometrics manual, let's say, put out by some organization. Is there any such thing in your field?

A I'm not sure. We got -- like the Encyclopedia of Statistics? It's a lot of books. It's about statistics.

Q Yeah, I guess like that.

A Or Kendall & Stewart.

Q I think I'm focusing upon econometrics in particular. There are -- for example, many universities have departments of both econometrics and statistics; right?

A I would think that's more of a rarity.

Q Okay.

A Are we saying in the same department? Maybe I

page 166

page 167

didn't understand your question.

Q No. Oftentimes statistics will be in the department of mathematics, and econometrics will be lodged in the department of econometrics?

A Yes.

Q Plenty of books entitled, "Econometrics" and plenty of books entitled, "Statistics"?

A Yes.

Q There's obviously overlap on what's covered in them?

A Econometrics is a bit like the epidemiology word; it's the application of mathematics. If you pick up the -- you read at the beginning what the journal is about, I think it says exactly that.

Q Do you subscribe to Econometrics?

A No. I've read it, but I've never subscribed.

Q Do you subscribe to any econometric journals?

A Not that are -- that have that word in the title, like Journal of Econometrics, but of course the applied statistics journals are also publishers of that kind of work.

Q With respect to Dr. Harrison's regression analysis, did you find anything inappropriate about --

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

inappropriate with his using a probit approach?
page 167
page 168
MR. McCARTER: Objection to form.
THE WITNESS: I haven't made a point of it in my report, but I'm bothered -- maybe I have. Let me start over again.
One always has to be concerned about specification issues. And there seems to have been little attention paid to the specification issues which I -- in my practical work, I elevate to the very top of the issues to be concerned with.
There's -- in the probit, there's a part of the specification that involves the transformation from the scaler value that is the result of the whole right-hand side to put it into the 01 interval. So it's sort of what is special about that kind of work.
And the probit analysis has a particular transformation that it uses; doesn't matter what it is, it's got one. But I didn't see an analysis that -- let me put it this way: That assumption could be quite critical to this work. And I'm concerned about that, but I apologize that I hadn't had the time to really chase that one down, so it didn't appear in my report.
BY MR. ANGLAND:
Q I just want to make sure I understand that point.
page 168
page 169
Is it -- are you talking about -- is your concern that perhaps Dr. Harrison failed to do something he should have done or that he did do something improperly?
A I guess both. The failure, if you would phrase it that way, is a failure to verify that the probit specification on this particular transformation piece that I'm talking about is indicated by the data. And it's not injecting something spurious into the problem.
The other side of the question was maybe he did something wrong. Well, maybe the probit specification isn't -- if it isn't the correct one, then that's wrong, because he's got a misspecification.
Q What do you mean when you talk about the probit specification being indicated by the data?
A Well, this is a hard one, to test this one out. But you -- if it's the case, and I believe this to be true without having done a calculation, that alternative specifications for the transformation between the right-hand side and the left-hand side of this probit equation -- if alternative specifications for how to do that transformation make important differences to the outcome, say, of SAFs or of damages, then you can't escape the question, how do I validate using this one
page 169
page 170
and not that one.
And I think it may well be important, and I wish I had paid more attention to it. Maybe I will have time yet. But I believe that probit specification might have been a critical choice, and I would like to look at that a little more closely, I think.
Q Now, looking at Dr. Harrison's two equations, the -- which I'll eventually use the shorthand of first

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

and second four, if that's okay with you, with the first being the dichotomous equation and -- which predicts the probability that somebody had medical expenses, and the second being the linear regression contingent upon the assumption that the person had positive medical expenditures.

A Yes.

Q With respect to those two equations, putting aside this reservation you just raised about the verification of the probit specification, putting that aside for a moment, and also putting aside the fact that you believe certain other variables should have been included on the right-hand side of the equations, are there, in your view, any specification errors in those equations?

A Should I put aside the age gender interaction?

page 170

page 171

Q I'm straining to recall if you included that in your report or not.

A Yes. Yes, I did. It's part of my -- discussed I think in more than one spot, but it's --

MR. McCARTER: In that new data we turned over?

MR. ANGLAND: Oh, I'm sorry.

Q Yeah, I was pretty sure it wasn't in your report. But you have noted the point, and so you can put that aside for the moment.

A Okay. Let's see. Yes. I -- whether this is a specification issue is a matter of terminology, but I think I either have pointed out in a report, or maybe it's in the newer material, that the most recent version from Harrison, where he calculates new certain variables, one of which is the alcohol indicator variable, I thought that that was at least deficient. It's a little less -- when you refer to specification, you don't usually think of a fault in the variable, but in the form of the equation.

Q Just so I follow you on this one, what was the problem with respect to his treatment of alcohol abuse?

A Well, let's see if I remember this right.

In his first treatment, the problem was he had too many people to be reasonable with alcohol abuse. He

page 171

page 172

had some five-year old, lots of them.

Q Right.

A And now the new, revised version doesn't seem to have enough. It's --

Q How did you determine that?

A I counted up.

Q Okay.

A Maybe we will get to that when we get more deeply into these materials.

Q Okay. We will. We will go as we go for those materials.

Okay. So that's another issue, whether it be deemed specification or not.

A Formation of some of those variables.

Q Okay.

A Just one second here. Specification. Okay.

And -- I haven't criticized any others that I can think of, like for example his logarithmic transformation. I'm not sure it was -- that it's not a

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

problem, but I -- it's not one of the ones that I picked on, at least.

If I think of some others over a break, I'll try to add to this, because there may be some other things that you call specification that I've got here.

page 172

page 173

Q Okay.

A I keep thinking of a clearer way to answer. Whether you call it specification or not, if it's in my reports, as you say, it's -- the report says what it says and doesn't matter if we call it a specification error or not.

Q Yeah. I mean, clearly whatever's in your report is there and is the position you have.

A I forget one of the things that's in there is still in there.

Q Okay. If you take a look at Exhibit No. 1.

A Okay.

Q In particular the bottom of page 5. This will overlap a bit with something we have talked about it, so we can probably go through it pretty quickly.

On the bottom paragraph there, you talk about omitted factors and say that his methods attributes to smoking the increased expenses arising from omitted factors.

A I don't think I'm following you.

Q This is the bottom of page 5.

A Okay.

Q It's the last sentence.

A Okay. I have it.

page 173

page 174

Q Which reads, quote, "His method incorrectly attributes to smoking the increased expenses . . . arising from omitted factors associated with smokers, and thereby yields overstated and unreliable estimates of smoking 'attributable' expense," close quote.

Do you see that?

A Yes. Let me read the whole paragraph.

Q Oh, certainly.

A Just a second. Okay. I'm with you.

Q In the last sentence, you indicate that the omission of these factors yields overstated estimates of smoking attributable expenses. It is also possible, though, that the omissions lead to understated?

A No. I don't think as a practical matter that's got any possibility.

Q Okay.

A No, not the way the world works in reality.

Q And that's -- the reasons for that are the reasons that you gave in the discussion earlier today, or do you have any other reasons?

A No, I think I've covered the reasons. I could probably elaborate, but you see it in reasoning from just an understanding of what factors are omitted and

page 174

page 175

how they are related to smoking. And you see it in the results as you add variables.

You see it in a comparison with the Wendy Max work compared to the Harrison work. And I think your

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

own experts, when they have been asked about it in deposition, basically agree with this point.

Q When you went through the list of variables a while ago that are listed elsewhere in your report, for most of them, you said you didn't have a view as to whether it would increase or decrease the SAF if you included those variables; isn't that right?

MR. McCARTER: Objection to form.

THE WITNESS: Well, we would have to review that. I thought that when we went through those variables, I was pretty sure which way we would go and others were not stated in a way that made the question easy to answer.

Some factor called dietary factors. How do you know what dietary factors are and which way they are going to go, so I tried to avoid answering on those.

BY MR. ANGLAND:

Q But given that --

A Given what? The reason I didn't answer that -- sorry to be argumentative here -- wasn't -- it was because the way that sentence was read, it didn't lend

page 175

page 176

itself to answering that particular question. Doesn't mean I have no view. I have this view here that I've written.

Q Let's stick with this, then, rather than the other sentence.

Do you have a view regarding whether including dietary factors somehow -- however you think they would be best defined and measured, that the inclusion of those factors would decrease rather than increase the SAF?

MR. McCARTER: Objection to form.

THE WITNESS: I think it would probably decrease the SAF.

BY MR. ANGLAND:

Q What's the basis for that?

A Just that if it's the case, as I believe it is, that smokers have less healthy diets, leading to more doctor visits and more doctor expense, than if you don't include those factors, you are going to pick it up as a smoking effect.

Q Do you have a view regarding whether smokers of a given income level and education have less healthy diets than nonsmokers of that same income level and education?

page 176

page 177

A I think they probably do. But the gist of your question may be that putting in some of those variables you mentioned would be a cure for not having dietary variables. And let me jump to that question. That's no cure.

Q I'm not suggesting it is. Indeed, I'm suggesting the SAF could go up if you included dietary -- if I'm suggesting anything, that would be it.

A The proof is in the pudding. I think you would want to explore that. But my opinion is that it -- clearly is would depress, would make the SAF -- I believe that the lack of the dietary information in these analyses is getting picked up by smoking variables and attributed to smoking.

Q And do you have any scientific basis for that?

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

A Well, yes.
Q What is that?
A We know, I think -- I can show you that the dietary habits of smokers are of the less healthy compared to the nonsmokers, and so that's enough right there. We know that the unhealthy diets are correlated with smoking. And so if you leave them out, they are going to show up as a smoking factor.
Q Okay. Now, with respect to alcohol, do you
page 177
page 178
have a view regarding whether, if you were to somehow perfectly be able to measure and model alcohol in the equation, doing so would decrease as opposed to increase the SAF?
MR. McCARTER: Objection to form.
BY MR. ANGLAND:
Q Of alcohol use?
A We have discussed that before, and I'll just briefly review, because it's --
Q And I do recall your testimony before. But I think you made a comment that some of it had to do with the way the prior sentence was worded. If your position now is the -- if your answer is essentially what you said before, then that's fine, just tell me that.
MR. McCARTER: Objection to form.
THE WITNESS: Well, I have no change of position. But just to clarify it -- and I'm sorry if I've been a troublemaker here on this point --
BY MR. ANGLAND:
Q Not at all.
A But it's clear enough to me that I can reasonably anticipate the result if we look at alcohol abuse, extreme alcohol. And there it would be like toxic exposures or unhealthy diet. I would expect it to
page 178
page 179
show up as a smoking defect if you omitted it.
More moderate or zero or in the more moderate range, it's a much more complicated thing, and I don't know how that would all thrash out.
Q Given that you don't know, it's possible, is it not, it is possible that fully and accurately modeling the effect of alcohol use would actually increase the SAF?
A It's possible. It's possible.
Q And isn't it possible that increase in the SAF could more than offset decreases in the SAF that came from including several of these other variables?
A Well, we are really into a speculative realm here. I don't think so. I think those others -- I think they would be outweighed.
THE VIDEOGRAPHER: Going off the videotape record at 3:02 p.m. This is the end of Videotape 2.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the videotape record at 3:11 p.m. This is the beginning of Tape No. 3.
BY MR. ANGLAND:
Q Dr. Wecker, let's assume that there's a variable that one would like to include in the
page 179
page 180

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

regression equation, because in reality it does have some impact upon, in this case, the amount of medical expenditures. But the data on that variable is just not available. In that case -- strike that.

Let's further assume that this omitted variable is highly correlated with another variable that is already in the regression equation. And it's a variable other than the variable of interest, in this case smoking.

So just to take a silly example, let's say you wanted information on diet, and it turns out that it was highly correlated with age and you already had age in there. In that case, to what extent would the effect of the omitted variable be captured in any event by the other variable that you have in age and in my rather silly example?

MR. McCARTER: Objection to form.

THE WITNESS: You can't really be sure in a multivariant setting. The first instinct is to think that you have part of it and not all of it. And in a lot of applications that may be the way things turn out, and it's a good way to maybe anticipate.

But the multivariant setting can get very complicated, and sometimes you can see things you really

page 180

page 181

didn't anticipate. The only thing you would know for sure is that you are harmed by not having it in. And you really can't assess without having the variable -- you can make some further assumptions, like I've done in an article I wrote on omitted variables.

So there are things you can do, but they are not easy things, because the effects can be quite complicated. In fact, I refer you to that article. That's exactly how you would think about this problem. And you can see how complicated it gets.

BY MR. ANGLAND:

Q Let me vary the hypothetical a little bit and say not only that the omitted variable is highly correlated with the variable that's in the equation, but that the mechanism for which the omitted variable actually influences the dependent variable, here expenditures, is through influencing the variable that's in the equation.

In that situation, are you harmed at all by excluding the imminent variable?

MR. McCARTER: Objection to form.

THE WITNESS: I'd have to study that. And I'm not trying to escape it, but I would have -- see, you are leading -- there's models where mechanism gets

page 181

page 182

explicitly incorporated, latent variable models, other things that are part of the statistical landscape, but you don't see them too often.

And the kind of regressions that have been done in this case are not of that kind. So I would have to think about how that would all work. If you -- and I don't want to do it, don't -- because I would like to get some sleep. But if I really understood the mechanisms and we had a structure, I could work that out.

BY MR. ANGLAND:

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Let me just give a hypothetical that has no basis in reality, but it's just that, a hypothetical we can talk about.

Let's assume that people were confident, based upon a variety of data, that more educated people had higher medical expenses, and that was a truism that everybody wound up agreeing with. But that in the particular database we are working with, we didn't have a barometer of education.

A Missing education?

Q That's right.

But let's further assume that the mechanism through which education level affects expenditures is

page 182

page 183

that, on average, more educated people have higher incomes and that, actually, it's the higher income that winds up creating the extra expenditures.

In other words, the reality is richer people spend more on medical care than other people. In that case, education would itself be correlated with medical care. But in that case, would an exclusion of medical care create any bias in the regression?

MR. McCARTER: Objection to form.

THE WITNESS: You didn't say it, but I assume income is in the equation?

BY MR. ANGLAND:

Q Yes. I'm sorry.

A The way I interpret what you have said is that -- because we haven't used Xs and Ys, there's necessarily some vagueness, but I think what you have told me is a set of facts that answers itself. And the answer is if you have income included, adding education would have no effect, because you have essentially assumed that in the way you have stated the problem.

Q On page 5 in Footnote 11, you cite two articles by Newhouse and others?

A Oh, I guess -- you have to add a few other things to that.

page 183

page 184

Q Oh, I'm sorry.

A I'm still thinking about this one.

Of course we would also want to assume that the missing education variable, which is correlated with income and with expense, is uncorrelated with everything else, because otherwise there would be some other variable that would -- the problem would be solved here, but it would crop up in another variable. We will assume that another way too.

Q Okay.

A You can assume enough things that basically make the education -- make the missing variable independent of the residuals from this equation and then you are safe.

Q Actually, let's look at the top of page 6, rather than the bottom of page 5.

You indicate that you have computed attributable expenses for factors other than smoking and that when you sum them, you wind up getting an amount greater than actual expenses; is that a fair characterization?

A Yes. Let me catch up with you. Just a second.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Q Sure. It's just the top paragraph there.
A Yes.
page 184
page 185
Q In the calculations that you did here on attributable expenses for other factors, were you actually using Dr. Harrison's equation?
A Yes.
Q And do you recall which other factors you computed the attributable expenses for?
A Well, I think if I find the work papers, I can pull them out here.
Q Okay. Let me ask this, maybe save us a minute: Did you do it for all the other factors in his model?
A I did it for a whole lot. I'd better look to see if it was all or not.
Q Okay.
A Let me find -- it will take just a second.
So I have the list that I computed. And then to answer whether it's all of his, we would have to get his list out, which I think is -- okay.
So I'm using variables that I take from Harris, which you will recognize from his report, come from his regression output that he displays. And then I have the calculations that we have just read about on the top of page 6.
Q And can you --
A This page that I'll show you.
page 185
page 186
Q Okay. Thank you.
A It has that list, and we can look to see what the overlap is.
Q Just give me a second here.
For the record, I'm looking at a page that Dr. Wecker just handed me labeled, "safa.lst."
Or is it "1-s-t"? Is it "list" or "1st"?
A List.
Q L-s-t.
And it identifies 17 factors, if I can use that word, the first of which is smoking. And if you don't mind, I'll just slide this up here a little bit, so we can both refer.
A We usually don't allow that, but you have been so gentile.
Q We will try to continue in a civilized fashion.
MR. McCARTER: Don't get too close.
BY MR. ANGLAND:
Q Now, that is less than all of the factors --
A Yeah, I can explain that, though.
Q -- that Dr. Harrison used, isn't it?
A But let me explain.
Q Sure.
A See, when it says, "smoking," that's -- that is
page 186
page 187
a variable which is a composite of, I think, one, two, three, four variables of his.
Q How did you form the composite?
A By setting everything to the least cost category.
Q And when you did that -- okay. Let's pick a factor other than smoking. Let's pick something like

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

age.
Dr. Harrison has both age and age squared; correct, on his model?
A You picked a harder one, but we can do that.
Q In --
A Just a moment, because I don't think age is going to be in here.
Q I thought it was up at the top.
A No.
Q Maybe I misread. No. Okay. That's fair enough. I thought it was there.
Let's take the being not Hispanic.
A Okay.
Q Maybe the best way to do it would be this: If you could just explain to me what is demonstrated by the first set of columns, which I guess would be the one, two, three -- or maybe it's just the first two -- it

page 187

page 188

would be the first four columns, I guess.
A Okay.
Q Explain to me what that denotes.
A The -- there are, I'm going to call it, panels here rather than columns, because there are some things that go together, and it will make sense in a moment.
We have one, two, three, four, five different panels of information that are like the five categories from Harrison, which are his hospital expenses, physicians, other professional drugs, and what he calls disease specific, I think. Okay?
So if we do one of those, the others are all alike. Maybe that's what you had figured out already; I'm not sure. Any one of these variables, if you take the high-cost category -- let's see if I can figure this out. And then you change all the people who are not in the low-cost category -- so you have to use this equation on -- actually, both of these equations because they come in pairs.
You have to use them on the people who are enumerated in the upper right-hand corner. And when you find a person who is not in the low-cost category, you change them into the low-cost category. And then you compare -- and then you calculate the full extent of the

page 188

page 189

equations after having done that for that person.
And then you compare the -- well, now, I'm just following his trail. You make a SAF the way he does with what I would call -- the numerator will have a difference between the data as it was and the data as it's been changed, and the denominator will be the data as it was. Hope I got this all straight.
And the result will be a fraction. So when it says, "6" here, it means like 6 percent. So it would be the percentage reduction in expense that results, mechanically at least, from changing people from high-cost category to low-cost category.
Q When you made that type of change, moving people from the low-cost to the high-cost category --
A The other way around. I make them low-cost.
Q I'm sorry.
A Putting everybody into low-cost that wasn't low-cost.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Did you do that simultaneously in both of Dr. Harrison's equations?
A Yes.
Q And I recognize that in your report you have, I think in Footnote 14, an observation that for some purposes you alter the group of people to whom
page 189
page 190
Dr. Harrison applies a given SAF. This goes to whether the people excluded from the first -- that were in the first equation, but not in the second equation, should be -- should be considered at a certain point in the analysis.
A Right.
Q Did you make any change in the way Dr. Harrison proceeded when you were doing this analysis on the page that we have been talking about? In other words, is that one of the places where you altered the methodological approach?
A I think not, but I will double-check that. I think that I did it exactly his way. Because I used his program, and I don't think I made that change there. But if I double-check that, I'll tell you. Now, if we wait just a second, I can just look at my computer backup and it might clarify that.
Q Sure.
A Because it's just my report doesn't say, so just a minute.
I don't see any indication that I made that other correction in this one.
Q Okay.
A So let's -- and I'll correct it myself if I
page 190
page 191
look at this more closely.
Q Now, I take it that the point of that exercise or the -- is that if you add up the attributable factors, they exceed 100 percent; is that essentially the mathematical observation that you are getting at there?
A Well, it's part of it. But also the point is that you can use this same methodology, the Harrison methodology, to reach conclusions like the ones he reaches with respect to smoking for -- I shouldn't say practically anything, but a whole a lot of the things, and practically anything I pick from his regression.
That's an observation. I'm not sure it's a point that has a sharp end to it, but that's part of it.
Q Well, I guess I'm searching to see if there is a sharp end to one of these points. I'm just going to stick with it for a second.
Does the sum of those attributable factors indicate there's something wrong with the regression analysis?
A I think it's a symptom of the something that is wrong, but it by itself is not the best way to prove it. It's -- if you were willing to accept going in that we have omitted variables and they are contributing to
page 191
page 192
expenses, at least in terms of the statistical associations that we are picking up with this kind of methodology, you are going to be overstating the SAFs

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

with not just smoking, but all kinds of other things. And this is one way to kind of see how that works.

Q Well, but if you had omitted variables that really are explaining what's going on here, while that may cause SAFs to be overstated, it shouldn't affect whether they exceed 100 percent or not, should it, as a matter of pure mathematics?

A Why do you say that?

Q Well, let me ask you it the other way around.

Whatever the reality is out there, this is a least-squares regression combined in a probit model. Whether you have got a good model or bad model to begin with because of what you have excluded, how does that have any impact on whether the sum of these factors exceeds 100 percent?

A This isn't a linear regression. This has got nonlinearities all over the place. So the simple analysis, you might glean from a single equation a strictly linear situation does not apply here.

Q With the nonlinearities you are referring to, the income squared, for example?

page 192

page 193

A No, I think of that as just linear.

Q What are you talking about, then?

A The probit model is a nonlinear regression.

Q Okay.

A And the log transformation is -- it's what I had in mind at least. I would dismiss from that category the things like squared terms on the right-hand side.

But the log on the left-hand side is combined with the probit model -- combined -- there's yet another step here with this procedure for calculating a SAF, which is, the SAF doesn't come full on from these regressions like a coefficient -- something divided by something else and its -- with a bunch of individuals being looked at one at a time. The whole thing together has nonlinearities in it.

Q Let's talk for a second about the point that you raise in Footnote 14, in the second sentence of Footnote 14 on page 7 --

A Okay.

Q -- of Exhibit No. 1.

A Okay.

Q You say that you corrected Harrison's omission from the SAF calculation of some subjects used in

page 193

page 194

estimating his probit regression analysis.

What was the error -- first, why don't you tell me what Dr. Harrison did, and then I'll ask you what was wrong about it.

A Sure.

Let me -- I'm trying to remember what -- I think it's Table 54. Let me see if it's -- just like remembering the Lorenz transformation. So we are finding -- here it is. Page 63. Better to start with page 62. You want to look together?

Q Is this referring to Dr. Harrison's report?

A Yes.

Q I've got that report.

A Okay. First an overview here. Starting in

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

roughly the middle of page 62 going down through a little past the middle of page 63, Dr. Harris is going to explain a procedure, okay? So we need to absorb, but I will do it in slightly overview fashion, because it takes quite a bit of time, what this procedure is.

This is essentially a well-specified algorithm. You have to think a little bit about what it means, but you can turn this into an algorithm, as he did and as I will.

So the letters "PS" and "PNS" that you see on

page 194

page 195

page 62, those are going to be like variable names in the algorithm. And to the right of the colon, it says in plain English what those are, and so I'm not going to linger on that.

Indicated on the next page there's two more variables, "ExpS" and "ExpNS." And I'm going to come back to those two in one second, okay? Because that's the important part.

And then in the -- just below the square mark, there's a beginning of a paragraph, and embedded in there is a couple more equations that relate EX -- ExpS to PS and ExpS, and then there's another one. Those are part of it.

And then there's an equation that's easier to find that's in the middle of the page that gets a SAF. What is unstated right at that point, but which is clear enough from the explanation, I don't think this is a controversial point, is that this SAF is a separate SAF for each individual.

So you might want to subscript it by the letter "i" for individuals. And then the point we are trying to eventually get to here is these are the individuals who have expenses that are non zero and used in a second equation, okay?

page 195

page 196

Now, you can see that -- it's quite clear. It's not something he's hidden or made it a typo, he's very clear about this. You can read it, for example, in the first square point at the top, where toward the end of that long sentence, it says -- after -- after the fireman -- it says --

MR. ANGLAND: For the record, I'll note that's a reference to noise outside the door, not an obscure message hidden in Dr. Harrison's report anyplace.

THE WITNESS: Exactly.

It says, towards the end there, and -- the fact that he or she made some expenditure claim. That's the folks who have positive expenditures and are the same ones that are the ones that make it into the second of his two regressions we talked about later.

BY MR. ANGLAND:

Q Can you remind me again which paragraph you were just referring to.

A On page 63. May I just point?

Q Yes, certainly.

A Toward the end here, and the fact -- it's in both paragraphs.

Q Okay. Gotcha.

A So that's where he states plainly enough in the

page 196

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 197
report that he's going to limit this calculation to individuals who had positive expenses. And then he goes on to explain he's going to calculate an average, a weighted average, but that's not the key point. The point we are after is that the SAFs are for individuals who had positive expenses.

Now, unless I've missed something, I believe this is not the controversial point. The controversial point is whether he should do it that way or not, not whether he did it that way. I believe it's pretty clear that's what he's doing, and you can see it in the code.

My understanding from discussing with counsel is that he adheres to that position, that he does it that way, and that's the way he intends it, and that's the way he thinks is right.

So how's that for an explanation of what I meant by that?

Q I think that's an explanation of what you understand he did.

And then, now let me follow up with what, if anything, do you think was wrong with that?

A Well, I thought, since I learned that he -- I thought when I pointed this out he would just fix it. And I hope I'm not so full of my own opinions that just

page 197
page 198

because I disagree with him, that I've got to be right and he's got to be wrong. But I'm afraid that's where we are on this; I think I'm right on this and I think he's wrong.

I thought when I pointed it out, he would just fix it. But now that I hear that he adheres to that, I see that we have to try to thrash that out. And my hope for the court would be that we could get that all solved before we head to trial, because I think it's a mechanical thing and I think he's got a mistake.

Now, I said, now, how am I going to demonstrate this that will explain enough? And so I made a couple of tables.

Q Are these the tables you gave me earlier?

A Yes.

Now, this is a hypothetical.

Q Actually, why don't we mark this for the record at this point, just to keep things a little bit clearer.

A Good.

Q We will mark as Wecker Exhibit No. 3 --

A Let me suggest putting the Harrison one first, or if they are already stapled, the other way, I guess.

Q They are stapled this way, but you can refer me to whatever page you want first.

page 198
page 199

MR. ANGLAND: There are two pages that have been stapled together, first is labeled, "Wecker SAF Calculation," the other "Harrison SAF Calculation." These were both produced to me today by Dr. Wecker.

(Plaintiffs' Exhibit 3 was marked for identification by the court reporter.)

THE WITNESS: Okay.

BY MR. ANGLAND:

Q Shall we start on the second page?

A Yes, best to start with the second page.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Now, this is a simple hypothetical done on a spreadsheet to highlight this issue of using -- which one did you do first? Okay. I have mine backwards. One second. Okay. Let me remark mine.

Sorry. I'll begin again.

So on the second page of Exhibit 3, we have the calculation at the top says, "Harrison SAF Calculation." In this illustrative example, I have 20 individuals, you can see from the left-hand side column, and 10 of them are ever-smokers and the other 10 are never-smokers, labeled on Column 1.

And I'm supposing that the actual expenses for the 20 individuals are the ones shown in Column 2. And you will see the smokers had more expenses, they had 10

page 199
page 200

occasions, they had $10 each. And the 10 nonsmokers, they had three occasions, $10 each. The total of the expenses between the smokers plus the nonsmokers is $80, shows at the bottom.

Okay. Now, my next column -- my next four columns are defined as Dr. Harrison defines them on page 62 and 63, and I use this same notation. So the PS, which doesn't explain itself here, is explained if you go back and refer to Harris. And it's showing that -- what a perfect model would say for the probability of an expense for a smoker, 50 percent; and for a nonsmoker, it would say 30 percent.

I think you are getting bored. Is it clear enough?

Q No, quite to the contrary. Actually, I fully followed both of your pages. I've looked through them. And you can say as much -- I didn't want to cut you off, but I see exactly what you have done.

A I was going slow, but since you can see it -- I tried to make it clear, and you can see what I've done, so let me leap to the end.

If you follow the Harrison procedure, I'm asserting this is a Harrison procedure, I believe it is, I believe I'm faithfully following his idea, you are not

page 200
page 201

going to get the right number. Because in this simple example, the actual smoking attributable expense and the actual SAF is known, so we have a yardstick to compare it to.

Q You are saying he should have got .25 but he got .29?

A Yes. But all you have to do is do the summation over all the people instead of part of the people, and you will get it right every time. And this is not a contrived example based on these specific numbers. You can change the spreadsheet around. If you use all the data, you will get the right number every time; and if you use part of the data, you won't.

Q How -- I thank you for the exhibit because it probably saved us a half-hour of discussion.

When you reran -- strike that.

Did you rerun Dr. Harrison's model making only that correction?

A That I'll -- it may take some time to check, because I've done so many variations. But let me see. This will take a minute.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Yes. I think if you turn to page 4, and I've numbered the pages in these tabs so that when you have copies, my identification should be clear on that.

page 201

page 202

Q Okay. Which tab is this?

A Tab 3, page 4. And I'll show you. This is the Harris replication, and that number -- from his older work now. That number should square with his smoking-related disease calculation. And then this is where you average across all individuals, and it's a different number.

Q And roughly speaking, when you made this one adjustment to his disease-specific computation, his SAF drops roughly -- 16.5 to roughly 13.3; is that fair?

A Yes.

Q Did you do a similar computation with his overall model as opposed to his disease-specific model?

A Well, that will take some more looking.

Q Okay.

A I'll see if I can find one of those.

Well, I don't see that calculation. It could be hiding in here. And during a break, if you will allow me, I'll try to save the time and find it.

Q Okay.

A One second. I'll make a note so I'll remember to do this. Okay. I'll look for that when I have more time.

Q Now, the middle of page 6, you refer to having

page 202

page 203

computed the attributable portion of expenses arising from mental disorders and the occurrence of an expense associated with an automobile accident.

Do you see that?

A Yes.

Q With respect to mental disorders, what SAF did you -- I'm sorry. I guess the word "SAF" is literally not correct. It would be, I guess MAF, for -- M-A-F for mentally attributable fraction.

What method did you compute with respect to mental disorders?

MR. McCARTER: Just to clarify, this is with respect to the older Harrison model?

MR. ANGLAND: Yes.

Q Right now I'm referring to the report which refers to the earlier model, but if it's more convenient to use the update of that, if it's been updated in the new disk, that's fine too.

A It's easier to answer questions on my report, which is Exhibit 1, by reference to the work that was connected to it.

Q Yeah, your choice. Whatever works.

A That's what I'll do. So I think I'll have it here in just one second.

page 203

page 204

Okay. I got 23.8 percent.

Q Okay. And where is that in your work papers?

A Tab 15, page 3.

Q Because we may be able to save flipping pages later on -- no, I'll put off automobile, because I have seen some updated automobile stuff.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Sticking with mental disorders for a second, what conclusion do you draw from the fact that Dr. Harris's model, according to your computation, gives a positive SAF of 23.8 percent with respect to mental disorders?

MR. McCARTER: I think you might have said, "Harris" instead of "Harrison."

MR. ANGLAND: "Harrison," I did mean to say. Thank you.

MR. McCARTER: Generally in the context where somebody could correct it on an errata sheet.

THE WITNESS: Let me get back to the question here. I think the interesting interpretation is probably that it's just so big, that it's cast out on its believability.

You can compare it to other things, like the smoking SAF for all expenditures at around 6 percent, but I think around 16, talking about the earlier work.

page 204

page 205

I hope to be more articulate if I think about this a little more, but basically I'm casting doubt on the quality of the model as a general matter.

BY MR. ANGLAND:

Q Does the mere fact that the SAF turns out to be positive give you concern, putting aside for a second the magnitude of the SAF?

MR. McCARTER: Objection to form.

THE WITNESS: No. That's not really -- if it were positive and very close to zero, I think I would have a different interpretation. So it isn't just positive.

BY MR. ANGLAND:

Q Did you determine whether the 23.8 percent is statistically significantly different from zero?

A No. I think I didn't -- that would be the bootstrap kind of calculation. I don't think I've done that.

Q You may -- I think you do have the data there, at least I know you do for automobiles. How big was your sample for this particular computation?

A 424.

Q Have you -- I believe you have rerun that computation recently, in light of the revisions in Dr. Harrison's model; is that correct?

page 205

page 206

A At least I've intended to. So maybe I've already done it, yes.

Q Well, I'll tell you the easiest thing is going to be to go for the new data tab by tab probably at the end, so I guess --

A I made another helpful table. I didn't give it to you earlier because it's just an index thing. Let me find it.

Q Okay.

A Just a second. Here we go.

For the new tabs, I've tried to indicate which one is an update of which earlier one. Now, this may not be perfect, because it was an index that I made just recently, but so if we are hunting for the tab which is the update of another tab, we can maybe find it fast doing this.

Q Oh, okay. Fine.

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Well, I think we will probably do all of these in a row later on, is probably the most efficient way to proceed, I think.

If smoking, in reality, has no effect on a particular type of disease, and if you had an excellent model, roughly what percentage of the time do you think that would show a positive SAF for the disease?

page 206

page 207

A If you mean positive by even the smallest amount different than zero --

Q Yes.

A I guess that would depend on exactly what you meant by a really good model. But I would phrase it slightly differently. I would expect it to get a number close to zero. I wouldn't make fine distinctions over whether it was a teeny amount above or a teeny amount below. If it's doing its job, it ought to be getting a number close to the truth.

Q Does the size of the sample affect at all how close to zero you would expect it to be?

A Other things equal, larger samples make for greater accuracy.

Q Let's say we had a sample of ten people, five smokers and five nonsmokers, and we had a lot of data about them and ran a beautiful model, but it only had ten people in it. And we had some condition that, in fact, everyone knew was unrelated to smoking, in reality.

In that situation, you could still easily get a high SAF because of the small sample size, couldn't you?

MR. McCARTER: Objection to form.

THE WITNESS: I think maybe yes, maybe no. It's a

page 207

page 208

hypothetical. Let me tell you why I'm -- you might think I should agree immediately to that, but even sample sizes of 20 can give quite accurate answers in some circumstances.

And I wouldn't -- generally I have the view that statistics can be done -- can be helpful in sample sizes even of 20. So I'm not sure how that would work out. I guess you would have to do the work.

BY MR. ANGLAND:

Q The variance in the dependent variable would have a large impact upon whether a small sample size could give you a reasonable production, wouldn't it?

A No. It's just one of many factors, so it's --

Q Let's take an example. Let's assume that we are doing our sample of ten, and we have got lots of -- and we are looking for the effect of smoking on a particular disease. We have got lots of demographic data -- or -- and when I say, "on a particular disease," let's say it's a particular category of expenditures of -- of medical expenditures, without getting down to the ICD9 code level.

And let's assume we had five smoking women and five nonsmoking women, and we did our regression analysis, and the dependent variable is the amount they

page 208

page 209

paid their gynecologist or obstetrician. And all nine of the ten women had routine visits during the year.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

And one had childbirth, the other nine didn't have childbirth.

Now, wouldn't you agree with me that in that case, whether the woman who had the very expensive childbirth was a smoker or nonsmoker could lead to an enormous difference to either an enormous positive SAF or enormous negative SAF relative to zero?

MR. McCARTER: Objection to form.

THE WITNESS: No. I'm sorry, I can't. Because I can contemplate a model that can completely -- in this case, we are not going to be able to estimate, in effect, on the single variable. You are down to one data point on this childbirth situation rather than ten.

So I may not be able to estimate something. So I may go back and say I have inadequate data to estimate that particular thing. But no, I think it's possible to have a model that could comprehend childbirth, and it wouldn't fool it into thinking that it's just a surprise high number.

BY MR. ANGLAND:

Q In other words, including on the right-hand side of the equation perhaps a dummy variable to

page 209

page 210

indicate whether there was a childbirth?

A Something like that, right.

Q Okay. Whereas, if one simply ran, if you will, Dr. Harrison's model without adding the W variable to check to see if there was that particular procedure, then you could get, if the woman who had childbirth was a smoker, a very high SAF or, if she was a nonsmoker, an artificially low SAF even if, in fact, the relationship was zero; is that correct?

MR. McCARTER: Objection to form.

THE WITNESS: I would have -- you may be right. It's complicated enough, I would have to -- I don't dispute you, but I would have to do some checking to see how right that is. It -- I'm leaning your way, I guess is the best thing to say.

But these things are complicated, and you can't be sure until you look at them. Is that -- my first "I'm leaning your way" answer in a deposition.

BY MR. ANGLAND:

Q It's the first one I've ever gotten, so I'm trying to figure out how to deal with it.

Now, with respect to automobile injuries and your computations regarding them that are referred to in this paragraph, can you tell me precisely what you did

page 210

page 211

there.

A Let me find it here. It's page 6?

Q Yes.

A Okay. Okay. I found it. Now let me just review it.

Q Okay. Can you just tell me where it is.

A Tab 27, page 2.

Q Okay.

A Let me just review.

Yeah, this is a SAF that is a little bit of a mixture of concepts, because it's not a SAF of dollars; it's a SAF of probability. So how much of the probability of expense for a car accident is

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

attributable to smoking? It's -- it takes a minute, but it's not that hard a thing.

So that if you had a SAF of -- a probability of a car accident .6 and but for smoking would have been .5, so that's like 20 percent.

Q Is it sort of like going to the first equation of Dr. Harrison's model in a sense?

A It's like that. So I've got -- so I've calculated here the SAF -- the smoking attributable fraction of the probability of a car accident for an adult.

page 211

page 212

Now, I -- just for background I do this, because I know from past experience that especially young males who are smokers are prone to get in lots of accidents, more so than others. So you see lots of traffic accident expense and incidents of traffic accidents showing up in young males who smoke.

Females get in accidents too, and people who don't smoke get in accidents, but there's a higher rate for this group.

Q How did you determine that, by the way?

A That that's true?

Q Yes.

A I've seen it for years in the data I've studied. I guess you -- I'm sure if I dredged up my Minnesota trial work, I think I had charts on it at that time.

Q Okay. You can continue with the prior answer.

A So I sort of know that from prior work.

And so now we are in this SAF-oriented analysis, and I said, well, you are going to see a big SAF for car accidents, especially in young males, because you get into car accidents and you -- fair chance if you were a young male smoker.

And so if I just mechanically apply the

page 212

page 213

Harrison SAF calculation, so I'm just using his programs, and swap in a car accident probability -- let me think where I get that. I'm drawing a blank, but I'm going to guess I just get it from his probit analysis, but I'd better double-check that one.

The NMES data has an indicator for whether you are in a car accident or whether you had treatment because of a car accident. So that would just be a zero or a one. And so I turn that into a probability, and I'll double-check on that. When I see you next, I can fill that piece in.

And then I just used the -- just used it like it was dollars, except it's a probability, and used the Harrison model. And sure enough it gets a SAF for -- positive SAF for car accidents, especially for young males. It's higher for young males.

Q And for the population as a whole, it's about 3 percent; is that right?

A About 3.6, it looks like.

Q Okay. Now, did you use, in fact, a probit equation?

A That's where I'm drawing a blank. The day's getting a little long, and I just forgot. And I hope -- since I can't do any better, since I forgot, I'll just

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 213
page 214
have to try to remember during a break.
Q Whatever equation you used would be reflected -- whatever model you used would be reflected in the --
A Right.
Q -- computer?
A I'll find it and then I'll find the spot. This output doesn't tell me, and so I was looking to see. And maybe if I take a second, this will explain it. No, it's got a bunch of include statements, so I'm pulling in stuff from another program.
So I'll -- I apologize for not having that answer immediately, but I'll get it to you.
Q Now, did you include in this analysis all cases where there was an automobile accident denoted in the NMES data? Did you treat that as an automobile accident, or did you somehow subdivide or look at only some of them?
A Adults.
Q Adults, okay.
A There's an -- I didn't have to create it. There's a variable there already for car accident expense.
Q Did you in some respect restrict your analysis
page 214
page 215
to particular ICD9 codes?
A No.
Q Bear with me a second.
A I'm going to get a cup of coffee.
MR. ANGLAND: Sure. Let's go off.
THE VIDEOGRAPHER: Going off the videotape record. The time is 4:12 p.m.
(Recess taken.)
THE VIDEOGRAPHER: Back on the videotape record. The time is 4:22 p.m.
BY MR. ANGLAND:
Q I think we agreed, Dr. Wecker, that to the extent you can, you were going to try to find a certain code we discussed?
A Yes.
Q Relating to car flags in the context of your report. But we will just defer that to either tomorrow --
A You know, until tomorrow, I can do it tomorrow.
Q Tomorrow is fine.
A Because I don't know how fast I can get to it tonight. I should be able to get to it.
Q Now, with respect to the SAF that you computed regarding the probability of having an automobile
page 215
page 216
accident, did you determine if it was statistically significantly different from zero?
A I don't think I did a bootstrap significance test there.
Q Well, without doing one, can you draw meaningful conclusions from the fact that there is overall a SAF of roughly 3.6 percent, as you compute it?
MR. McCARTER: Objection to form.
THE WITNESS: Yes. I think it's worth noticing and

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: https://www.industrydocuments.ucsf.edu/docs/ttgd0001

seeing that it's huge and it casts doubt on the reliability of models that will produce that, just because of its hugeness. But it would probably -- it would be a stronger point if it was also statistically significant; I don't think it takes the point completely away, if it's not.

BY MR. ANGLAND:

Q Well, let's compare -- strike that.

Even if the 3.6 percent is not statistically significant, it might still be an indicator that, in fact, smoking, according to this model, contributes to automobile accidents, even, again, if it's not statistically significant.

MR. McCARTER: Objection to form.

THE WITNESS: I don't believe that smoking causes

page 216

page 217

automobile accidents; it's, I think, a spurious finding that we have here.

BY MR. ANGLAND:

Q I used the word -- I tried to include "according to this model" --

A Okay.

Q -- in the question.

What I'm getting at is, if, as we discussed before -- I think you said that it would not be surprising to have at least a small positive or negative SAF, even if something was completely unrelated to smoking; is that fair?

MR. McCARTER: Object to form.

THE WITNESS: Yes. Referring back to what we said, that's the kind of thing we said. But I didn't have 3 percent in mind. I thought -- I think the numbers that I was getting from automobile accidents are not small.

BY MR. ANGLAND:

Q Okay. For the -- we didn't mention --

A We didn't -- but for the young males, I think it was well over 7 percent.

Q In determining whether a SAF is small or not or significantly different from zero, isn't the procedure

page 217

page 218

one uses testing to see whether it is statistically significantly different from zero at a given P value?

A Yes. That's what you do when you do a significance test, right.

Q Okay. And if, in fact, it is not statistically significantly different from zero, why would it be relevant in this context?

MR. McCARTER: Objection to form.

THE WITNESS: Well, this is just the other side of the point that we were talking about several hours ago. You have some smoking estimates which are not significantly different from zero.

And I have said in -- to comment unfavorably on that, that that casts some -- raises some questions about the reliability and meaning of those. But I don't think that it says you have to dismiss them out of hand and that they can't possibly be true.

But it does raise some questions, and it might be an obligation to explore further to make sure these are real things and not spurious.

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

BY MR. ANGLAND:
Q And as applied to your automobile analysis, if this is not statistically significant, does that also, to use your words, raise serious questions about that
page 218
page 219
analysis?
A No, because I'm not trying to take money from Blue Cross for automobile accident expense. These are just illustrative of the kinds of things that this model does and of the kind of things that I can anticipate that they will do.
That's why I chose automobile accidents, because I would expect to get a smoking SAF for those, because the automobile accidents are elevated among smokers, especially young males. So this is a result that's not surprising.
So I display it just to illustrate the way that effects can appear to be due to smoking when they are known to be spurious.
Q Now, you say, "known to be spurious." Is it -- do you have an opinion that smoking does not create any physiological effects that increase the likelihood of automobile accidents?
A Not as a physiological effects expert, but if there's a debate as to whether smoking is causing automobile accidents, I'll step away from that debate and let other people thrash it out.
But as a layman, and sometimes I can resort to lay instincts here, doesn't seem to me that you could
page 219
page 220
really blame car accidents on the tobacco companies.
Q That's your layman's opinion? You don't have an expert opinion on that?
MR. McCARTER: Objection.
THE WITNESS: I don't have an expert opinion on that, that's true.
BY MR. ANGLAND:
Q And if that layman's opinion is wrong and if, in fact, there is some mechanism through which smoking can cause physiological effects that lead to car accidents, then the inference you draw from this particular segment of your analysis would no longer be sound; is that right?
MR. McCARTER: Objection to form.
THE WITNESS: Yes. But I think that is -- I'm trying to be kind here. But it does seem like a bit of a silly argument when you step back a little bit. I'm not just a layman. I study car accidents -- I've studied car accidents in NHTSA data and the federal data on automobile accidents.
I know a lot about car accidents as a statistician who has studied them, and I've never heard anybody tell me that the accidents that young males have are caused because they have a cigarette; it's because
page 220
page 221
they have been drinking too much or they are driving too fast. But if there is a tobacco company theory of car accidents, say it will be the first I've heard of it.
BY MR. ANGLAND:
Q Okay. Well, the good news is we are getting to

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

items on my list that we have covered another way. At the bottom of page 6 there's the section we talked about entitled, "Omitted variables."

A Yes.

Q One of the variables you talked about is insurance coverage.

A Yes.

Q What do you mean by "insurance coverage," first of all?

A Consider an individual who has Blue Cross coverage for at least some portion of a year, but in addition they have some other insurance company that's also covering them. Then the -- that might not be a private insurance company.

So Blue Cross would show up as private insurance, the way NMES records things. Well, the prospect of having an expense -- let me see if I can sort this out.

Certainly the prospect of having an expense

page 221

page 222

associated with the private insurance would be changed by the fact that you have some other insurance coverage as well. And I think that's the gist of what I have in mind here.

Where I look at an individual and it indicates that they have more than one kind of insurance, I just want to put in a variable to indicate that they have more on the prospect that it will influence their medical expenses.

I'm drawing a blank here. This is late in the day. Because I think they are listed as private insurance expenses, but I have to double-check that.

Q Yeah. Let me just make sure I understand.

Let's assume we have a person in the NMES sample that is covered by private insurance for ten months and Medicaid for two months.

A That isn't just it. There can be overlap. People can have two kinds of insurance at the same time.

Q Okay. Let's take my simple example first, then.

A Yes.

Q In that case, and let's assume that, in fact, the person has $100 expenses every month by coincidence.

In that case, what does Dr. Harrison use as

page 222

page 223

his -- as the total expenditures for that person? Does he use a thousand or 1200 or something else?

A I think he would use the 1200.

Q Now, I believe you did add in one of your sensitivity analyses a variable or variables to measure insurance coverage. How did you measure it?

A It was a percentage of the year that you were covered by, say, Insurance Type Z.

Q How did you ascertain that?

A As I recall, the NMES questionnaire just asks you for how many months you had different kinds of insurance, and so you can just divide by 12 to get a percent. And then with the point I was inserting before, those percent don't always add up to 100 percent because of overlaps, but that's still what I wanted to do, have the percent of each kind of insurance.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Courtesy of http://industrydocuments.ucsf.edu/docs/ttgd0001

Q When the percent added up to more than 100 percent, did you normalize them in some way?
A No. No.
Q What impact did controlling for insurance coverage -- private insurance coverage have in isolation?
A I don't know if I did it in isolation. I have to look. Just a minute. I never did it just by itself,

page 223

page 224

but I can tell you the first place that I added the insurance variable was on Tab 3, page 14.
Q Okay.
A But it's added to social and poverty variables as an additional variable.
Q Let's talk about the social support variables for a moment.
Why, in your view, are they important variables to add to the regression analysis?
A Because the literature shows very strong effects on -- strong health effects, making the tie to expenses is more problematic, but at least as far as health effects, they are well established in literature and very large. When I first learned about the size of them, I was really quite surprised because they are huge.
Q Do you know what mechanism -- through what mechanism social support or contacts reduces medical expenses? And by "mechanism," I'm talking about physiological mechanism.
A Yes. Well, I've had conversations with individuals about that, and some things they have said are convincing to me. For example, if you are married, your wife actually might nag you to the point that you

page 224

page 225

go to the doctor because she sees a medical condition and is concerned about your health.
So that's one I can understand, because this happens to me. I don't like to go to the doctor, and my wife says, "You are going." And maybe I'm healthier for that, so that's an easy one to see.
The ones that study church attendance in groups are, I think, more difficult to comprehend, but may be related to stress or I don't know what. But studies that I've seen show that having friends and belonging to churches or other social groups seems to be an important thing in -- at least as far as in association to health.
Q And with respect to that, though, the question is, do you know what the physiological mechanism is through which they affect health?
A No, I don't.
Q All right. Now, with respect to depression, do you have any view regarding whether smoking can directly make somebody depressed?
MR. McCARTER: Object to form.
THE WITNESS: Well, I don't have a medical doctor's understanding of that, but struggling with the question I would say mainly not. I think that's -- you might be able to dream up some special case scenarios where you

page 225

page 226

could talk yourself into that, but mainly not.

http://legacy.library.ucsf.edu/tid/egr05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

BY MR. ANGLAND:
Q Well, is it your position that there's nobody who occasionally feels blue because they can't kick the habit of smoking?
A No, it is not my position. I say -- you can dream up some -- I shouldn't say, "dream up," because I don't disparage it, because I think there probably are examples like that, but mainly not. I would think it would not be the main thing associated with depression.
Q Right now I'm not getting to the main thing, but whether it's a mechanism that could exist.
A It could in some circumstances.
Q In fact, do you believe that there are some people who feel blue because they can't kick the smoking habit?
A There may be some such people, but I think mainly that's not an explanation for why people are depressed.
Q Do you know if some people feel blue because they have lung cancer?
A I'm sure they are unhappy to have lung cancer, but I don't know that it would be a depression-creating thing.

page 226
page 227

Q Well, the NMES variable that you add is not a measure of clinical depression, is it?
A No, it's a feel down, feel blue pair of variables.
Q Which is why I use that language. And I think there's one question dealing with whether you feel blue and the other whether you feel very blue or very down. Isn't that what you are measuring there?
A That's the variable.
MR. McCARTER: Object to form.
BY MR. ANGLAND:
Q Okay. And do you have a view regarding whether somebody who has been diagnosed as having lung cancer is more likely than the average person to feel blue for a while thereafter?
A No, but that may be amenable to calculation.
Q Okay. Do you have any opinion, expert or otherwise -- and I don't mean that in a pejorative way, I'm getting to the fact we are getting into medicine and psychology and other things there. I realize that might have been interpreted as meaning something else.
Do you have any view regarding whether being under a course of chemotherapy or radiation treatment might tend to make one blue?

page 227
page 228

A Might, might not. I'm really -- at this point I'm not an expert in relationships between therapy and mental state.
Q Okay. And focusing upon the pathway that we have talked about so far, which is smoking either directly or indirectly making somebody depressed, if that is the case that smoking leads to depression and you then add a measure of depression, a variable for depression on the right-hand side of the equation, as you did, would not the result be, if everything else in the equation were right, to compute a SAF that would understate the amount to which expenses would be avoided

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

if the person did not smoke?
A Might or might not. It would depend on how big an effect that is. If you were saying that everybody who is depressed is depressed because they smoke, then you would be right.
Q Okay. To simplify the logic -- and I'm not suggesting this is true, but to simplify the discussion here, let's assume that were the case.
A Yeah. But I'm -- every once in a while when I'm asked to assume something that is so deviant from what I believe, I have trouble assuming it.
Q I'm really getting at a mathematical
page 228
page 229
proposition here. I'm not suggesting -- I'll be clear on the record, I'm not suggesting it is the case that every smoker who's depressed is depressed because he smokes. I'm just trying to trace through the mathematics.
A If that were true, it would.
MR. McCARTER: Let me object to form.
THE WITNESS: It would potentially at least lower the smoking variable; it wouldn't have to. But I think that as a practical matter, that is what you would see.
BY MR. ANGLAND:
Q Just to be clear, in that example which you believe is contrary to fact, but in that example, adding a variable to measure depression could produce a lower smoking attributable fraction than is, in fact, the case?
MR. McCARTER: Objection to form.
THE WITNESS: Depends on how you added it. But if you added it -- if you knew what you were telling me, you wouldn't add it the way you are saying; it would be not a good idea.
BY MR. ANGLAND:
Q Well, you added it in your equation; right?
A Why, yeah, but I don't believe your assumption.
page 229
page 230
Q But what I'm getting to is if, in fact, my assumption were correct, then the way you added it would lead to an understatement of the SAF?
A If I believe that all smoking -- all depression were caused by smoking, which I do not, I would do something different with this variable than what I did.
Q I understand. And I understand what you believe. But of course somebody else may have a different belief.
And if, in fact, the jury winds up concluding -- Judge Weinstein or anybody else winds up concluding that, in fact, smoking is the cause, take the extreme case, of all the depression, then your methodology would understate the SAF, assuming everything else was done correctly?
MR. McCARTER: Let me object to form.
THE WITNESS: I for sure agree that if your assumption of all depression is caused by smoking were true, which I don't believe, I wouldn't -- picking the easy part first, I wouldn't add it simply as another right-hand side variable. I would have to think as to whether it would always lower the SAF.
That -- it's one of those things that seems

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

intuitively correct when you first hear it, but I would
page 230
page 231
want to think that one through. It may be that it wouldn't in all circumstances, but I would have to think about that.
BY MR. ANGLAND:
Q Okay. Let's assume that smoking does not cause all depression among smokers, but rather it causes, say, 20 percent of all depression among smokers.
A Mm-hmm.
Q In that case, would it be proper to simply include depression -- a depression variable or variables on the right-hand side of the equation the way you did in your analysis?
MR. McCARTER: Object to form.
THE WITNESS: Well, it would -- you would certainly want to include it, and excluding it would not be a cure. So it would be an error to leave it out. And you would probably want to include it in a more complicated way, maybe with a simultaneous equation model or something other than -- other than what I did, which is by just simply adding it in with other variables.
BY MR. ANGLAND:
Q And I understood your observation, though, would be an error to just leave depression out entirely in that example. Would it also be an error in that
page 231
page 232
example to include it the way you did it?
MR. McCARTER: Objection to form.
THE WITNESS: It would probably not be the most advanced practice, right. Error might be a little strong because we make approximations, and approximations of this kind have been made routinely by the people who I'm reviewing, and I'm not complaining about small points.
But I think you could study that, and you could decide with a little more analysis if it would be, as a practical matter, acceptable to just add it without going to the complications of some more complicated model.
BY MR. ANGLAND:
Q At the bottom of page 6 and the top of page 7 of Exhibit No. 1, you mentioned that when you add these four variables to Dr. Harrison's regression results, you get a SAF of 3 percent compared to 16 percent. Now, that's a reference to the disease-specific analysis, I take it?
A I haven't found this yet.
Q This is the carry-over sentences from 6 to even 7.
A Yes.
page 232
page 233
Q Okay. Did you do a similar computation on his all-disease model?
A Just a second. Let me look at the new report to see if I might have done it in there.
Q Sure.
A I'm sorry. It wouldn't be in the new report. It would be in the report -- it doesn't have a report, so I'm not going to find it here.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

I can't point you to a spot on that now. If I have one, I'll try to tell you when I see you next.

Q Okay. In the first full paragraph on page 7 entitled, "Poor predictions," you mention that you compared aggregate actual expenses of NMES subjects used by Dr. Harrison to the expense he predicted for those subjects, and that they were -- the actual are five times greater than the predicted.

Do you see that reference?

A I don't see it, but I remember it, so you can you can continue.

Q Okay. If you want to reference, it's really the first about six lines of the paragraph labeled "Poor predictions" on page 7.

A Okay. Yes, I see it now.

Q Could you tell me exactly how you did that

page 233

page 234

computation that resulted in the five-time multiple?

A Yes. I'll tell you exactly in a second when I go to the work papers. But I can tell you, in case it's confusing, the gist of it is real simple.

Q Okay.

A That the Harris calculation, as we have discussed before, is implemented in the way that I described in Exhibit 3 by only adding up -- in this case averaging for SAFs for people that had positive expenses, okay? So if you take an individual who had a positive expense and then calculate an expense for them with a probability of an expense that's lower than one now times an expected expense, it's going to come in way low.

So I'm really illustrating no more than the fact that he looked at only a small portion -- not small, but a portion of the individuals, and he wasn't counting the others.

Then the other expenses -- well, I'm sorry, those are the people with the expenses. But when you multiplied by a probability that's less than one, it makes the predicted expense too small. So that's the gist of it.

Now I'll go show you where the calculation is.

page 234

page 235

Q I see in Footnote 18 there's a reference to "Harrison details.xls." Is essentially what you are going to do is identify -- is that reference for both the -- both of the two prior sentences before the footnote, the 5-time multiple and the 29-time multiple?

A Yes.

Q Okay.

A Tab 24, most especially page 1, where I calculate and say the 5 number and the 29 number, you can see -- you can see how that calculation is done of the -- I'm trying to think what else you would want to know here. Just a minute.

If you wanted to know more, you would go behind that. And there's a huge file that I haven't printed out that is the -- it's got over 12,000 individuals in it. And in that huge file you can go person by person and find out what their expenses were and -- let's see.

I don't have here what I think I would need. You would have to go to that huge file that has the

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

person and go person by person applying the Harris type of limitation on which people you look at.

And the actual is easy; you just add up their expenses. And you have to take their predicted in the way he would, which is -- I think we found it on

page 235

page 236

page 63, 62 and 63 before.

THE REPORTER: I just want to say for the record that you are saying, "Harris" and "Harrison."

THE WITNESS: I'll correct my answers. I won't presume to mess with your questions.

BY MR. ANGLAND:

Q Fair enough.

A Given the materials in front of me, that's as close as I can get.

Q Roughly what percentage of the people in Harrison's -- in the NMES sample had a positive medical expenditure for the year?

A Looks like a little over 60 percent.

Q Can you explain how -- strike that.

Given the explanation you gave as to why Dr. Harrison's computation of expenditures was off, I would have surmised -- and I didn't think it was true, but I would have surmised that only 20 percent of the people in the sample would have had medical expenses in order to get a one-fifth factor, the reciprocal of which would be five.

A No. No.

Q Okay. Can you explain to me why?

A Yes. See, it isn't -- the issue is not the one

page 236

page 237

that I believe is behind your question. It isn't -- if you add up this limited number of people, the 60 percent of people, if you add up their expenses, that is all their expenses. So if you add up all the others, they are just a bunch of others.

So the issue comes that what -- so when you add up those limited number of folks, you are getting all the expenses all right, and that's what comes out as the actual.

The thing that's one-fifth is because you are multiplying them by numbers that are approximately .2, probabilities of expenses when you are calculating.

Q But wouldn't the probability of expenses be .6?

A No. No. No. Because it's coming from a detailed model. In my little hypothetical there, I did it that way, but his are smaller.

Q So --

A .6, it's still going to be way too low, but it's still not as low as I calculate it. That's why I would like to get the -- I wish I had the larger data file, I could actually show you these probabilities, but I didn't print it.

Q And what file is that that you are referring to by name?

page 237

page 238

A I don't know. It's one of Dr. Harrison's.

Q It's one of his files in which he computes a probability?

A Yes.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Okay.
A Right. I'm just using his numbers to get this.
Q Okay.
A And I don't have the name of the file, I'm sorry.
Q In the -- about a sentence later, you say, "Dr. Harrison's prediction calculation erroneously excluded NMES subjects who reported no expense during the subject period."
What particular calculation are you referring to there?
A The -- what I had in mind by that term, it may not be the best term, and so we don't need to -- I don't intend to make something out of those words, but I had in mind that page 62, 63 calculation.
Q Okay. The next paragraph you talk about having an R-squared of only 7 percent. Do you see that?
A Yes.
Q Does the fact that the R-squared is 7 percent indicate to you that the model is inappropriate for

page 238
page 239

predicting the impact of smoking on expenses?
A That one thing in isolation wouldn't be enough to tell you for sure, but it does weigh in unfavorably, I think, on the model because it tells you that 93 percent remains unexplained by this model, and that leaves a very large door for other factors to -- I don't know if other factors walk through doors, but since so much is unexplained, it leaves open a lot of possibilities for other factors that are confounding.
Q If one had the -- a great model that had great data with no gaps and was perfectly specified as far as you were concerned and sufficiently good that you were comfortable with it as predicting what the SAF was, it's still quite possible that that could have an R-squared of 10 percent or below, isn't it?
MR. McCARTER: Objection to form.
THE WITNESS: I don't know. That's too speculative.
BY MR. ANGLAND:
Q Do you know one way or the other whether it could have an R-squared below 10 percent?
A If it had an R-squared below 10 percent, I would have the same concern with my work that I have with Dr. Harrison's work. It leaves an awful lot unexplained, and I want to reflect on the reliability of

page 239
page 240

the model in such a case.
Q It would be possible, however, that the model -- both the model as it's structured and the results it obtained were absolutely correct, even with the lower squared below 10 percent?
A It's possible. There's just a lot of possibilities that it isn't correct.
Q Are you reluctant to rely upon a study because it's -- a cross-sectional study because it has R-squared below 10 percent?
MR. McCARTER: Objection to form.
THE WITNESS: Yes, I would be reluctant. It's a signal that there's a lot unexplained, and you would want to start investigating what these other factors might be and try to get a better understanding. It's

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

not a -- certainly not a positive thing.
BY MR. ANGLAND:
Q What if, as revised, Dr. Harrison's modeled an R-squared slightly above 10 percent, say about 11 to 12 percent?
A Pretty much the same concern.
Q At about what level of R-squared do you begin not to have this concern?
MR. McCARTER: Objection to form.
page 240
page 241
THE WITNESS: I've told you earlier that issues of specification are things I lay awake at night worrying about, so I always have concerns about specification. So this is just one thing that keeps me awake just a little longer.
It's -- I don't have a bright line, but the lower, the more restless I get. Certainly 7 percent, 10 percent you have to ask yourself, well, what are all these other plus 90 percent things that are in the reality involved here that I don't understand.
And maybe some of them are correlated with some of my right-hand-side variables, my specification is no good. Maybe I don't understand as much as I think I did. It's bothersome.
Q Now, at the bottom of page 7, top of page 8, you have a paragraph entitled, "Illogical high cost categories." Do you see that?
A Yes.
Q And I'm testing this out, certainly not putting words in your mouth.
Is basically what you are saying that for some categories of expenses one demographic factor -- one possible outcome of a demographic factor, such as being female as opposed to male, tends to lead to higher
page 241
page 242
costs, and yet for other categories the opposite factor might tend to lead to higher costs? Is that in essence what you are saying?
A That's basically it.
Q Why is that illogical?
A Well, we will -- we might have to get beyond my expertise to get real expert knowledge on these categories. But if I took a moment and we found some -- my work papers on this, I could show you some examples and I would pick one where I say, now, to me this doesn't make sense.
Q You list several examples on the top of page 8, in that paragraph.
A Yes.
Q Is it your view that the examples that you chose of all the examples that are out there are examples -- that of illogical outcomes?
A Yes. There's sort of mixing together of inconsistent and illogical. I didn't mean to make a bright line between the two. These are examples that to me seem difficult to understand and perhaps illogical.
For example, that alcohol abuse is the high-cost category when it comes to all expenses, but it's the low-cost category when in smoking-related
page 242
page 243

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

diseases. Maybe that's true, but I'm going to be surprised if a medical doctor says, oh, yes, that's the way the world works. I would be surprised.

Q I'm sorry. I didn't mean to interrupt.

A I just said I would be surprised. I'm not claiming my expertise is superior to others.

Q You can't think of any explanation why that might be true, as you sit here?

A No. As I look at -- not in isolation, but as I look at these -- if I saw all the other categories that seem to make good sense and one that didn't, I guess I think it would be more likely that there would be a story there that I was just ignorant of.

But I see too many. And perhaps I should talk to medical doctors and get their -- get a conversation with them. Because it is illogical to me, but then you might say that I don't know what I need to know to properly understand what appears illogical to me on its face.

Q Well, on page 9, in the first full paragraph in the second sentence, you talk about Dr. Harrison predicting SAFs at particular levels for certain children. Do you see that?

A Yes.

page 243

page 244

Q Is what you are doing here going through and applying Dr. Harrison's model or using his application to model to actual, particular human beings in the NMES sample?

A As he does.

Q Right. I just want --

A Right.

Q This is not some hypothetical?

A No. This is real people, and these are his calculations.

Q Right.

A I'm just pulling them from his calculation.

Q Okay. I just wanted to verify that.

In the bottom paragraph on page 9, you mention that one thing you do is split the past smoking by parents into two categories; past smoking more than two years old and less than two years old.

Do you see that reference?

A Yes. But just in case we are -- in case you misread it, it's not two years old for the child, it's two years prior to the birth.

Q The smoking being two years old?

A Yes. Just for clarity.

Q If there was somebody who smoked continuously

page 244

page 245

for the last five years, do you include them in both categories as having --

A Yes.

Q Okay. In other words, those are not alternatives?

A That's right.

Q Okay. Just trying to understand the structure of the analysis.

Now, you mention at the top of page 10 under, "Drug and alcohol variables" that Dr. Harrison got rates for alcohol and drug abuse that were too high. In his

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

more recent report, Dr. Harrison corrected a coding error in that regard. I think you mentioned you had analyzed his recent report in that regard; is that correct?

A Yes. He certainly has fixed the thing I was pointing out is a mistake here. And then in his more recent report, it seems to me the occurrence of alcohol abuse is too infrequent to make good sense.

Q How did you draw the conclusion that it was too infrequent?

A Well, I don't have the numbers right in front of me here, but a small fraction of 1 percent is my recollection. Not a number that I understand is

page 245

page 246

realistic.

Q Now, the mechanism -- the procedure Dr. Harrison used for measuring alcohol abuse was actually using a proxy of some sort, certain types of liver conditions; is that right?

A Yes. His new method.

Q Excuse me?

A His new method. Which one are we talking about?

Q Well, in both methods what he purported to do in his report was to use ICD9 codes --

A Liver conditions, things -- it wasn't liver conditions. It was things like broken bones.

MR. McCARTER: Let me object to the form.

BY MR. ANGLAND:

Q We will use the new one to make it simple. I think we are confusing what it is he claimed he was doing and what a coding error caused him to do.

A Okay. We will talk about the new one, then.

Q Okay. The new one is the simplest route.

A Okay.

Q He uses some sort of proxy in terms of certain diagnostic codes; right?

A That's right. But I'm having trouble

page 246

page 247

remembering the exact details.

Q Something, for example, like cirrhosis of the liver?

A Yes. Yes, that's right.

Q Okay. Now, I just want to understand, when you say that the numbers he generated seemed to you to be unreasonably low --

A Yes.

Q -- I'm seeing if you mean either or both of the two following things.

A Okay.

Q The first is the number was just too low compared to the number of people in our society who would use alcohol. The second would be the number is too low for people who have cirrhosis of the liver, there have got to be more people who have cirrhosis of the liver than that.

Do you mean either --

A The first thing.

Q Okay. So you are not claiming that given what he purported to do, which is use some measure of cirrhosis of the liver as his variable, that he didn't

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

do what he purported to do there; you are questioning whether doing that is a sufficient control for alcohol

page 247

page 248

abuse?

A Actually, I'm certainly agreeing that it's the latter point that I'm making now. But I am still studying some details of his recent work.

Q Okay.

A I say some of -- maybe not this one, but some of which I only got last week. And if I were to find that there's some kind of coding error that -- because I was surprised at what I saw, and I haven't quite figured out why it is that way. Then I guess I would supplement, or whatever the lawyers told me.

Q On the top of page 11, you talk about -- this again is in Exhibit 1.

A Let me take a small note, if you don't mind.

Q Sure. And I think tomorrow, just if I can interrupt, the way I'll start is by asking if based upon your extensive notetaking, there's anything you want to do to supplement today's record.

A Yeah, I will do. So I'm now --

Q Page 11 on the top paragraph, where you talk about diagnostic tests, and then in the next paragraph say that Dr. Harrison has apparently not tested his assumptions by using such diagnostic tests, I take it to mean. Is that a fair characterization of those two

page 248

page 249

paragraphs?

A Yes.

Q Okay. Which diagnostic tests are you referring to there that Dr. Harrison should have, but as far as you can see didn't do?

A Well, there's many possibilities, and I would -- actually, as I read this over, I must have been in kind of a bad mood, because this seems like a little bit of a nasty way of expressing what I wanted to say.

But I -- the point remains I don't take it back, but let me try to explain a little bit better.

When a test is -- when a model has been specified, there are various ways to detect it. And numerous tests, dozens and dozens of tests, books have been written about different methods for this.

So I'm supposing here that he hasn't been doing all that. He doesn't talk about it, and I believe his model is misspecified. And I do one simple such test, and I see the misspecification.

Q Which test are you referring to there?

A Just adding these cross-products, the interaction terms. So if you add interaction terms and they show up as significant and other things change, then that's -- you must have had a misspecified model.

page 249

page 250

Q Now, is that -- are those interaction terms embodied in the files referred to in Footnote 27? Is that where those interaction terms are?

A Yes.

Q First of all, is there a typo there?

A Yes. It's number mspec2. And when you copy this report, I've got it, a correction, typo.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Q Okay.
A "mspec1" and "mspec2" that should read.
Q Now, which interaction terms did you add?
A Age and gender, as I recall.
MR. McCARTER: I don't know if I should interject here. There's -- I don't know if there's a difference between the files he just turned over to you for which we don't have a report and the files referred to in this report that we do have. I don't know if there's any confusion in your mind.
BY MR. ANGLAND:
Q At any point, did you test for interaction terms other than age and gender?
A I can't think of any others.
Q When you tested -- okay.
I take it you found that the age/gender term was statistically significant when you tested for it?
page 250
page 251
A Yes. And counsel points out that we are looking in the older first report, and there's something similar to this going on in the new report. But let's stick, as you were, I think, for clarity, with the old report.
Q Okay.
A Let me just pull up that work, and so I can be more specific.
THE VIDEOGRAPHER: Going off the videotape record at 5:18. The is the end of Tape No. 3.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the videotape record at 5:26 p.m. This is the beginning of Tape No. 4.
BY MR. ANGLAND:
Q Dr. Wecker, were you able to identify the -- find the file that had the interaction terms that we are talking about?
A Yes.
Q And what results did you get from your inclusion of the age/gender interaction term?
First of all, can you tell me where it is?
A Yes. Tab 14, page 5 is the summary. The results that are the point that I'm making is that these
page 251
page 252
variables are statistically significant, the interaction variables.
Q You say, "variables." Do you have more than one, or did you use the same variable in different of his equations? Why are you using the plural?
A Because I'm using age/gender interaction, in this example age/gender squared. But I think in the -- when I work with the revised Harrison models, I just use age/gender, if I remember correctly. But in this work anyway, here I have age/gender and age/gender required.
Q Is it age/gender squared or age squared gender?
A Age/gender squared. The product squared.
Q Okay. And did you compute --
A Age/gender squared -- this is like Lorenz transformation, 01 variable.
Q Right. That's interesting. I would have been surprised you would have done it. That's why I was taken aback.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://industrydocuments.ucsf.edu/docs/ttgd0001

Did you compute how the -- what effect on the SAF the inclusion of those interaction terms had?

A I may have. That wasn't the point. It was just that it was showing misspecification and the output I'm looking at here, it doesn't show that. I may not have calculated it.

page 252

page 253

Q All right. Now, on the bottom of page 11, you talk about a significance test error by Dr. Harrison.

A Yes. I think he's fixed that now.

Q That was the point I was getting at. In his new report, he corrects something in the area of significance testing. Have you reviewed the new report in that regard?

A Yes. He seems to have fixed this, so I don't have this criticism anymore.

Q All right. Let me show you --

A Let me read what I said here, so when I said, "this criticism," I'll know what I meant here.

Q Okay.

A Right. The criticism that I don't have anymore is that he -- and I'll read the sentence: "Harrison reported for his adult regression analysis" -- I'm sorry. I'll start over.

"The significance test results that Dr. Harrison reported for his adult regression analysis are not for the regression analysis on which he relies for his damage calculation."

That's the thing he fixed.

Q Okay. At this point, given the revised numbers that Dr. Harrison generated, do you have -- are you of

page 253

page 254

the view that for any of the categories for which he derives SAFs, the results are not statistically significant?

A Yes, I believe that shows in his report. You want me to try to find that?

Q Yes, please.

A Well, we will have to find -- I'm looking at page 53 of the Harrison July 24 report.

Q July 14?

A I'm sorry. July 14 report. We will have to stop soon. I'm really getting tired.

But it's page 53, and there's a table there. And you find some coefficients that are significant by the usual standard and some that are not.

Q Focusing upon the total expenditure category, at the 95 percent level, the second equation is significant and the first equation is not; is that correct?

A Yes.

Q Given that fact, do you have a view regarding whether it is reasonable for Dr. Harrison, with one of the two equations in this case satisfying the 95 percent test, to be confident of -- I'm trying to use a layman's term here, be content of his conclusion that the SAF is

page 254

page 255

not zero?

MR. McCARTER: Object to form.

THE WITNESS: I don't think you can restrict the

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Digitized by http://www.industrydocuments.ucsf.edu/docs/ttgd0001

question of whether someone should be confident in the quality of the SAF output to this one table. Because I point out far more serious problems in terms of misspecification, for example.
BY MR. ANGLAND:
Q Just to be clear, and I don't mean to imply by any of these questions that everything else is just fine as far as you are concerned. I'm really just focusing on this table now.
Put another way, if all he reported were the results of the statistical significance testing for total, and he forgot the other subcategories underneath it, in your view are his results statistically significant at the 95 percent level?
MR. McCARTER: Objection to form.
THE WITNESS: Well, the coefficients -- the coefficient for smoking in the total case that you have pointed to is not significant, not even close. Moreover, you can't forget all those other categories, because that's how he does his calculation.
BY MR. ANGLAND:
page 255
page 256
Q Yeah, I'm going to get to that in a moment.
A Okay.
Q But the coefficient that you say is not significant, is that the 1.7?
A Yes.
Q However, in that same category, the .03 statistic is significant; correct?
A Yes.
Q Taking them in conjunction, do you have any way of concluding whether the SAF --
A No.
Q I'm sorry. I didn't mean to say, "the SAF."
-- of whether the smoking variable is statistically significantly related to the expenditure variable?
MR. McCARTER: Object to form.
THE WITNESS: For that last question, you only need the second equation. The first equation doesn't involve the expenditure variable.
But my opinion here -- maybe I'm not listening hard enough, but there's nothing convoluted about the view that I have from this table. There's some significant and there's some not, and when you have not significant ones, it raises questions about whether you
page 256
page 257
are looking at a spurious effect or not.
BY MR. ANGLAND:
Q Right now I'm reading left to right rather than up and down. I'm trying to deal with the situation --
A Dealing with the first row, it's the same thing.
Q Let me give you an example.
Let's assume that the effects smoking had, and I certainly don't believe this is true, but let's assume that it had, was simply to make a large number of medical conditions worse, conditions the person would already have had, but they are worse and they are 10 percent more expensive to treat.
And this is found with incredible consistency,

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

I'm hypothesizing, and no question about it in the data, and when somebody runs a probit equation like Professor Harrison is they find, you know, smoking doesn't affect very much whether one goes to the doctor or the hospital at all; what it does mean is that your expenses are 10 or 15 percent higher when you do.

In that situation, you would have nothing resembling statistical significance in the first equation, but you would have tremendous statistical significance in the second equation, as I've

page 257

page 258

hypothesized it, wouldn't that be right?

A No. Unless we add some more to the hypothetical. Because you haven't assumed a way with the hypothetical, which I think you would need to do, that if the smoker is sick, there's a question of with what frequency, even though sick, he goes to the hospital.

Q Fair enough. Let me --

A If he's sicker, he might go more.

Q Let me hypothesize that just for the sake of the math, which is all I'm testing, that smokers and nonsmokers will both go whenever they are sick, but that smokers will end up having more expenses.

In that case, you could have a very low level of statistical significance or no statistical significance for the first equation, a high level of statistical significance for the second equation. And because of the relationship embodied in that second equation, there would, in fact, be really a positive SAF; isn't that right?

MR. McCARTER: Object to form.

BY MR. ANGLAND:

Q In my hypothetical?

A Yes. Because I think you have now -- through

page 258

page 259

increasing stringent assumptions about behavior of people in choosing whether or not to go to the doctor, you have even made that even-steven between both, though, as you say, you don't believe necessarily, and I don't believe as a matter of fact, that they are even-steven.

But if you do that, then you would expect no significant effect in the first equation, and you would expect -- well, you would have to wait and see what you got in the second one.

Q In simple terms, just looking at the total category again, is it fair to say that as you interpret this, Dr. Harrison's equation -- let me back up.

I recognize you have many quarrels with Dr. Harrison's methodology, and, again, I'm just talking about the interpretation of this table.

Is it fair to say that what this suggests is there is not statistically significant support for the proposition that smokers will have some medical expense -- have a greater likelihood of having some medical expense during the year than nonsmokers, but there is statistically significant support for the proposition that if they do have an expense, it will be larger than the expenses of nonsmokers?

page 259

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

page 260
MR. McCARTER: Object to form.
THE WITNESS: I would not -- I'm not willing to give that interpretation.
BY MR. ANGLAND:
Q Why not?
A Because when you -- as charitable as I am in going along with these hypotheticals, you have got me to the point where I can't go this far. Because right here in this very same table I just cannot ignore that the total line is not the only line here.
And you have the situation where you have -- and bear in mind that it's the hospital, physician, other professional, and drugs and disease-specific, which are the ones he uses.
And I'm not finding the result when I look at the full table that you find when you restrict attention to the first row. And I guess I'm being bull-headed, but I'm not willing to restrict attention to only the first row when the others are staring me in the face.
(Plaintiffs' Exhibit 4 was marked for identification by the court reporter.)
BY MR. ANGLAND:
Q Let me switch gears for a second, just as a prelude to tomorrow. Let me show you what I've marked
page 260
page 261
as Wecker Exhibit No. 4, which is a document you handed me earlier, and ask you if you can tell me what's in it.
A Okay. There's a Tab 32 that when we come to it would be rather hard to explain with just words. And let me find that tab. So it's -- you can see by looking at this one page that I'm holding up, it's a whole lot of very tiny print that's hard to read.
Q What page is that?
A It's the first page of Tab 32.
Q Okay.
A And so there will come a time where you say, well, explain Tab 32, and we will both have eye strain trying to work through the tiny print. And so what I have done is make the print a little larger, and with my handwriting try to make some further notes that help to clarify.
And even when I did that with the first page of Exhibit 4, I thought it was still not that intuitive and understandable. And anticipating that you would have further questions, I actually had some people make over the weekend some charts that I hope will bring some further clarity.
I didn't actually see these charts until this morning, and so I hope they are correct. And I hope
page 261
page 262
they are helpful when we get there.
MR. ANGLAND: Off the record for a minute. Give me just a minute or two to see if there are a few questions I need to ask to make things more efficient. I'm not going to -- these will be orientation questions.
THE VIDEOGRAPHER: Going off the videotape record at 5:43 p.m.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the videotape record at 5:44 p.m.

http://legacy.library.ucsf.edu/tid/egn05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

BY MR. ANGLAND:

Q In the computer media that you most recently sent to us over the past week or thereabouts, I understand only from the titles of certain things that what you have done is rerun some of the old computations that you had done in light of the revisions that Dr. Harrison made in his model; is that fair?

A Yes.

Q Is there anything beyond that that is contained in your -- the most recent media?

A Yes. I think -- I think it doesn't boil down to being just as simple as that. I've got this table here that I've prepared that is fairly cryptic, but it gives some idea what's in each tab.

page 262

page 263

Q Okay.

A Did you get a copy of this?

Q I'm not sure if that's your copy or if that's the one you showed me.

I actually have a letter from Mr. Garnick which appears to track that pretty closely. So you can use that, and I can use this and it will probably work.

A Okay.

Q Why don't we go through the tabs, and if it's just an update of something --

A I'm going to have to open up each one to give you reliable answers. I can't do it just from this.

Q Okay. All right. Let me ask you this: On Tab 42, talks about an update of an analysis of expenditures from injury and poisoning.

A Okay. It's an update of 27.

Q I didn't recall anything in your report itself about injuries and poisoning, although I could have forgotten it.

A You may not.

Q That was a problem you need to ask with respect to either Tab 27 or Tab 42? What, if any, conclusions did you draw from whatever you did there?

A Tab 27 is the one with the car accidents in it

page 263

page 264

that we discussed before. And Tab 42 is -- now, here's a concern. I haven't printed everything out in these tabs, so it may be that when you look in the computer directory, that there will be some injury and poisoning in my Tab 27, but I don't think so. It's just a caveat, okay?

But I don't see anything, but car analysis in my printed out Tab 27. So that makes me think that's really all that's there. And then when I go to Tab 42, I see analyses that are like the car analysis, but I'm using now a different variable, injury and poisoning expenditures.

Q Okay. And what do you conclude regarding injury and poisoning expenditures?

A I see a SAF of 5.1 percent for that.

Q And if I understood correctly, you can't, by simply looking at the -- your index to the most recent produced files, tell me whether there's any other new analyses in there as opposed to updates of the analyses?

A No, not from the index. It's a matter of terminology to think of this as an update or not or new

http://legacy.library.ucsf.edu/tid/egm05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

or not. All the updates are in a sense new, but there is a correspondence with Tab 27, and then it's the same kind of thinking, same kind of point.

page 264

page 265

Q Okay. All right. Let's break for the day. Now, I have a lot more to do, but nothing I can do profitably in five minutes. But since it's late, as you note, seems like a good time.

A 9:00 o'clock?

Q Let's start at 9:00. Let's try to be as efficient as possible.

THE VIDEOGRAPHER: This concludes today's proceedings in the deposition of William Wecker. The number of videotapes used are four.

We are going off the videotape record. We are going off the record at 5:50 p.m. This is the end of Tape 4.

page 265

page 266

I, WILLIAM E. WECKER, Ph.D., do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this _____ day of _____, 2000, at _____, _____ (City) (State)

_____

WILLIAM E. WECKER, Ph.D.

page 266

page 267

STATE OF CALIFORNIA)
:ss
COUNTY OF SAN FRANCISCO)

I, the undersigned, a Certified Shorthand

http://legacy.library.ucsf.edu/tid/egi05a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001

Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: _____

_____

RACHEL FERRIER

CSR No. 6948

http://legacy.library.ucsf.edu/tid/egn05a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ttgd0001